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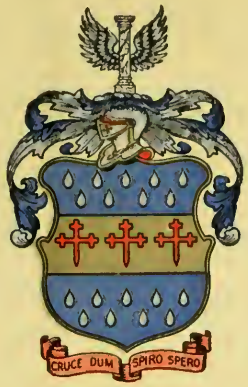

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JANUARY, 1848.

VOL. I. NO. I.

THE

WESTERN JOURNAL

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS, INTERNAL IMPROVEMENT, COMMERCE

AND

GENERAL LITERATURE.

"[illegible] of civilization."

M. TARVER AND T. P. RISK,
[illegible]

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THREE DOLLARS A YEAR.

IN ADVANCE.

Communications are invited upon the following subjects :—

1st. The Adaptation of the Climate and Soil of the West to Sheep growing, and the prospect of profit arising from this branch of husbandry.

2d. Upon the Introduction of Manufactures in the West.

3d. Upon the subject of Internal Improvement in Missouri and the Mississippi Valley in General, and the Locations which will best promote the General Interest.

4th. The Internal Commerce of the United States.

5th. The Mineral Resources of the Valley of the Mississippi.

T. F. RISK,

ATTORNEY & COUNSELLOR AT LAW,

OFFICE:--23½, SECOND STREET,

Between Pine and Chesnut Streets, in the same building with the United States Land Office,

ST. LOUIS, MO.

THE

WESTERN JOURNAL,

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS, INTERNAL IMPROVEMENT, COMMERCE, AND GENERAL LITERATURE.

M. TARVER AND T. F. RISK, EDITORS AND PROPRIETORS.

VOLUME I. JANUARY, 1848. NUMBER I.

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THE

WESTERN JOURNAL.

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ARTICLE I.

The objects proposed by the Editors of the Western Journal.

The combination of knowledge with labor, may be regarded as the only means of securing to the industrial classes their legitimate position in the ranks of civilization.

It is not sufficient that these classes should be acquainted with the details of the arts in which they are employed.—They must advance a step further, and enlighten their minds with a knowledge of the science connected with their several pursuits: and they should, also, understand the relation which exists between the producers and the consumers of all the leading articles of human comfort.

Owing to the diversity and variety of human wants, a large portion of mankind must necessarily be employed in producing articles for the use and consumption of others; and hence arises the necessity of an exchange of products: the means of making these exchanges, so as to promote

the interest of all classes, constitutes one of the great problems of political economy; and is alike interesting to both the producer and consumer. The nearer these two classes can be brought together—other things being equal—the greater will be the advantage of each; for, it must be borne in mind, that the labor and capital employed in these exchanges, add nothing to the quantity or quallity of the article, therefore, if we analize the subject, we shall discover that the merchant and the carrier derive all their support and profit from the labor of the producers; and hence it follows as an inevitable result, that the greater the distance and cost of making the exchanges, the greater will be the burthen imposed upon the producing classes. For, although the merchant and the carrier, are necessary agents, yet viewed abstractly, they may be considered as constituting a previledged class.

Impressed with the truth, as well as the importance of these propositions, the Editors of the "Western Journal" have entered upon its publication, with the design of collecting and laying before the people of the Mississippi valley, that class of facts and information which relate to the varied pursuits of the People. And, to enable them to do justice to the work which they have undertaken, they respectfully invite the agriculturist, the merchant, the manufacturer and the miner, to furnish the Journal with such facts and information as may be deemed useful and interesting to the public.

The Western Journal will contain an account of all valuable discoveries and improvements in agriculture, manufactures, and the mechanic arts.

The leading and more important statistics of the agriculture, commerce, manufactures, mining, &c., of not only the Mississippi valley, but of the whole country, will be collected with care and fidelity, and laid before our

readers in as concise and clear a form, as their nature will admit.

It is our wish to collect at as early a period as practicable, a full and complete account of all the manufacturing establishments of whatsoever kind in the Mississippi valley; to the end, that we may be enabled to note the increase from year to year, so long as our Journal shall be continued.

Considering internal improvements as one of the great social agents of the age, we shall collect and publish such facts and information touching this subject as may be deemed useful to our readers.

Believing that our Republican form of government can only be sustained by the virtue and the intelligence of the people; we shall advocate the importance of establishing an efficient system of Education in the State of Missouri; one that shall secure sufficient instruction to every free white child within our limits, to enable it to read the Holy Scriptures and the Constitution of the State, and also, that each elector may be able to write his own ticket at the polls of an election. To enable us the better to promote this important object, we shall be pleased to receive and publish the plans and suggestions of such patriotic individuals as may be willing to connect their names with this subject.

In the absence of more important and interesting matter, we shall endeavor to furnish our patrons with original essays upon the various subjects connected with the objects of our Journal; but we entertain a hope that the intelligence and public spirit of the people of the West will in due season relieve us from much of this labor by furnishing matter more interesting than our own productions.

We shall neither write nor publish any article, which has reference merely to the politics of the State or gen-

eral government; but in treating every subject which comes properly within the range of the objects proposed by this Journal, we shall seek for truth, and endeavor to establish it by the aid of reason, without reference to the private, or political opinions of others. Unfortunately, political opinions have reference mainly to expedients, and change with the causes which give rise to them;—we aspire to an object more permanent—we aim to direct the mind of all classes to what we esteem their true interest, and to afford all the light in our power to direct them in its pursuit. We wish to see the almost boundless resources of this great valley developed, and to connect our humble names with its history.

ARTICLE II.

The Geology and Mineral Resources of the State of Missouri.

INTRODUCTION TO THE SUBJECT.

No geological survey having as yet been made of the State of Missouri, we conclude that information in relation to its geology and mineral wealth, will be both acceptable and interesting to our readers.

Impressed with this opinion, and urged by a desire to procure such information from a reliable source, we addressed a note to Doctor H. A. Prout, of this city, requesting him to furnish us with the result of his scientific researches in reference to this subject.

The following communication from the Doctor, in reply to our note, will advise our readers that he has generously consented to prepare for publication in the Western Journal, a series of numbers upon the geology of Missouri, and the adaptation of its natural resources to the wants of its population.

From the contents of this communication, we are authorized to expect something more than a mere descrip-

tion of rocks and minerals. The writer indicates a design to discuss the subject with reference to both the physical and moral uses of the geological and mineral constituents of the earth: this manner of treating a subject, which is considered dry and uninteresting by the general reader, will impart much value to these essays, and render them both useful and interesting to all classes.

GENTLEMEN—I acknowledge the receipt of your note, in which you request me to offer you such information as I have collected in my investigations of the geology and mineral resources of the State, and of the Mississippi Valley generally. A partial knowledge, gained by a few excursions through the country, and from details furnished by others, not always to be fully relied upon, would, perhaps, render any attempt to embody the facts connected with this subject, a work difficult in its execution and in some measure unfruitful in its results. But owing to a general and increasing desire for geological knowledge, and the great benefits which may flow from even a partial understanding of the nature and extent of our mineral resources; and knowing the influence which early and even imperfect discussions may have on future investigations upon this subject, I feel encouraged by your polite invitation, to throw together such facts as I have obtained; hoping that the future labour of others may fill up the incomplete sketches which I may draw. The field is extensive, and the subjects embraced by it affect more or less the interests of every calling and class of men. For the natural wealth of a country consists in the mineral treasures which are distributed below its surface, and the physical adaptation of its soil to the production of the staples on which human industry is expended, and by which human life is sustained.

In comparing the advantages possessed by different countries, in the distribution of these two great sources of national wealth, we find much diversity. It seems that by a providential arrangement, a country which is liberally en-

dowed with the one is deficient in the other ; and the exceptions to this order are, where there exists a seeming adaptation of the one to the wants and purposes which necessarily grow out of the other. The more precious metals are seldom found except in countries characterized by the arenaceous nature and general sterility of their soil ; but being of great value in proportion to bulk, they are easily transported and exchanged for such of the appliances and conveniences of life as the earth fails to yield. The metals which are more useful in forming and fashioning the impliments of agriculture, and the instruments and engines of the mechanical arts, are found associated with great store houses of appropriate fuel, in districts of country eminently adapted to the pursuits of agriculture.

In view of this distinction of natural resources, there will be little difficulty in showing that our own State is peculiarly favored by such a distribution of these advantages as affords all the elements of national greatness and national prosperity, giving to the industry, the energy, and the enterprise of its citizens ample scope in the future development of the resources of the State. Without the knowledge furnished by the experience of the past, and the flood of light which has been thrown out by the modern discoveries in science, its soil might become exhausted, or rather plundered, and its wealth squandered, without promoting materially the well-being and happiness of its people, or their progress in the great march of civilization and refinement. To illustrate the truth of this proposition we will merely institute a comparison.

The number of silver mines in Mexico has been estimated by Humbolt at about 3000. Its soil is admirably adapted to the production of some of the best staples of human subsistence. It has consequently both elements of natural wealth—but these have been as yet imperfectly developed, and have contributed but little to the advancement of individual or national prosperity. For the abundance of the spontaneous fruits of the earth, and the little labor required in procuring them, together with the enervating influence of an almost inter-tropical climate, have

rendered its people too indolent to profit by their advantages, or to make much progress in social happiness or national wealth.

England, on the contrary, is limited in its extent, when compared with the Mexican provinces. But possessing the best association of natural resources, and being favored with a climate which is peculiarly adapted to the development of the physical and moral energies of man, its prosperity stands unrivalled among the nations of the earth. Her agricultural resources, though at one time exhausted, have been improved by the application of the principles of modern chemistry. Her manufactures borrow the elements of their fabrics not only from her own bosom, but from the broad surface of the globe—her commerce whitens every ocean, and her navy stands as graceful memorials of the extent and grandeur of her power. What England has attained by the best application and disposition of her natural resources, might be attained by Missouri through the operation of similar causes, for the same elements of power and advancement exist in the one which exist in the other, and nothing but a gross misapplication of principles, or an abuse of our resources, can prevent us, as a people, from making rapid strides in national prosperity.

Owing to a temporary absence from home, it will not be in my power to furnish you with any other communications until my return. The first of the series will embrace an exposition of the general classification of the rocks, according to the more modern divisions of geology, this being necessary to an understanding of the discussions which follow. The economical geology of the State will then form the subject of consideration, and the adaptation of the resources of the State to the various purposes of life, will close all we wish to embrace in these numbers.

Yours, respectfully,

H. A. PROUT.

ARTICLE III.

THE ECONOMY AND HABITS OF PLANTS.

The effects of climate on the habits of Plants, Indian Corn, Cotton, Irish Potatoe, Potatoe-Rot.—Mean annual temperature, Meteorology, Dew, Winds, Fruits, Grapes.—Effects of light, and the influence of the Moon upon the growth of plants.

The vegetable kingdom is the medium through which the properties of inorganic matter are elaborated, and made suitable to the purposes of food; and it is through this medium alone, that the animal kingdom derives the means of its subsistence.

This arrangement in the economy of nature, is so immediately connected with, not only the existence, but the moral condition of man, that every fact relating to the economy of plants, is worthy of attentive observation.

To the individual of learning, or taste, the vegetable kingdom affords a boundless source of pleasure, as well as instruction; and is eminently calculated to direct the mind to the contemplation of the wisdom and benevolence of the Creator.

To the practical agriculturist, a thorough knowledge of the economy and habits of plants, as also the causes which influence their growth and developement, is highly necessary, for without this knowledge, he is not only liable to misapply his labor, but must remain in ignorance of those moral pleasures which were designed to be associated with his employment.

Our design in the present essay, is simply to notice the economy and habits of the vegetable kingdom, and the effects produced upon plants by change of climate, without reference to their cultivation.

The geographical location of plants, is determined by the degrees of temperature, rather than latitude; but owing to a diversity of altitude, as well as a diversity in the mineral constituents of the soil, it rarely happens that any one plant takes possession of a large district of

country, to the entire exclusion of others. Hence, several families as well as varieties are frequently found growing within a limited district, and sometimes mingle in close proximity to each other. Some, however, are so select in regard to temperature, soil and moisture, that they confine themselves within very narrow limits, and cannot be produced beyond, without arrangements highly artificial; while others more hardy and enterprising, ramble far from that, which would seem to be their original place of location. In their migrations, they conform to the changes of climate, soil, and other circumstances connected with their new location; and while undergoing the modifications incident to these changes, they are transformed into distinct varieties. Hence, the more extensive the range in which a plant is found, the greater is the number of varieties into which it is divided; these varieties, however, rarely depart so far from the family resemblance but that they are readily recognized as descendants from the same stock.

The cerial tribe in some one or more of its forms, is found on every part of the habitable globe, where there is sufficient fertility of soil to sustain vegetable life; and is divided into a greater number of varieties than any other tribe of the vegetable kingdom. From this is derived perhaps nine-tenths of the food of both man and beast, in most civilized countries; but it is a fact worthy of observation that none of those varieties which are cultivated for bread, have been found growing wild, in any of the countries which have been discoved in modern times. This is the more remarkable, when we reflect that within the last four centuries, new countries have been discovered in every climate that can be inhabited by man.

Many trees are found bearing fruit in their wild and uncultivated condition; and man may eat of the herb of the field, but in the sweat of his face only, may he eat bread; for without culture, none of the grain-bearing varieties of the cerial tribe will bring forth fruit. But to compensate for this necessity of cultivation, nature has adapted some one or more of these grain bearing plants, to every climate that can be inhabited by civilized man.

Of all those plants, one only, is indiginous to our continent; and this is so remarkable in its economy, and so important as an article of food, that we shall notice it as an illustration of the effects produced by change of climate upon the vegetable kingdom.

In the United States, the region of the most perfect developement of Indian Corn, [*Zea Maiz*] may be considered as extending from about thirty-three to thirty-nine degrees of latitude; it is however, highly productive on both sides of this belt. But as we proceed north, from about latitude thirty-nine, the plant gradually becomes smaller, and the size of the ear diminishes in proportion. This decrease in the size of the plant, for the first two or three degrees, is compensated by the increased number which may be grown upon a given quantity of ground; but as we proceed still further towards the north, the number and size of the grains produced by a single plant, become so much diminished, that the increased number of plants, fail to make the crop equal to that of the true corn growing region; and thence, as we proceed north, the value of the plant rapidly decreases. But still it continnes to accommodate its habits to the climate, and to produce seed, until loosing its large and beautifully developed proportions, it returns to what may be called a grassy state, and produces the seed upon the top of the stem, instead of the ear, which in a more favorable climate shoots out from about the middle of the plant. These changes are the effects of climate merely; but the general economy of the plant is remarkable in many other respects. It delights in a deep and well pulverized pasture, and sends out its roots to feed at a great distance from the stem; from these roots, innumerable small fibres, or radicals branch off, and take complete possession of the whole mass of pulverized earth near the plant, except a small portion at the surface. When the plant is in this condition, one might conclude, that if these roots were broken up by the plough, it would perish; but as they can only perform the office of feeders at their extremities, when that part of the earth nearest the plant has been once completely overrun, it ceases to contribute to its support;

and hence it is important to break these roots, that the plant may send out a new race of feeders, into a new pasture, improved by the chemical effects produced by pulverizing the soil.

The plant requires a high degree of temperature to stimulate its developement; but it takes care to protect itself from the heat of a burning sun; and its arrangements for keeping cool, during a hot day, is most admirable. In the first place, the stem is very succulent, and contains a large quantity of fluid; and to prevent this fluid from evaporating too rapidly, a leaf is attached to each joint, the footstalk of which, forms a wrapper that encases the stem to the next joint above, leaving a small space between this wrapper and the stem, which forms a reservoir for holding water; the leaf is smoth upon the upper surface so as to reflect the heat, and being depressed in the centre, and more elevated at the extremity than at the base, it serves as a conductor to the dew which is formed in globules upon the smooth surface, and carries it to the reservoir at the base of the leaf. By this admirable contrivance, if the dews have been copious during the night, a sufficient quantity of water will have been collected, to supply the plant with moisture, and to keep it cool by evaporation during the heat of the day; and thus it rejoices in comfort while other plants are drooping around it.

From these causes, it is better calculated to resist draught or to recover from a bad state of cultivation, when the cause is removed, than perhaps any other plant. When the grain has matured, the ear, which was erect while growing, becomes pendant, and being covered with a strong husk, is protected, as well from the rains, as from the ravages of small animals and birds; thus evidently proving that the economy of the plant has reference, not only to its growth, but to the preservation of its seed also.

When these, and many other remarkable traits, in the character of this plant are considered, the mind is so forcibly impresssed with the obvious design evinced in the arrangement of all its parts, that we are almost ready to conclude that it is a thing of intelligence, rather than a mere plant.

From these peculiarities in its economy, and its wonderful elasticity in recovering from adverse circumstances, it is the most certain of all crops known to man; and it may safely be predicted, that if planted in due season, and cultivated with skill, that a crop throughout the corn-growing region of the United States, would not fall twenty per cent. below the general average, once in a series of one hundred years. And when we consider that it is abundantly more productive than the other grain-bearing plants, and that a greater number of crops may be raised upon the same ground, in any given series of years, we must conclude that the middle region of the United States is capable of feeding a much larger number of people with bread than any other country of eqnal extent of territory upon the globe. This gives to the corn-growing region of the United States an importance which has not usually been attached to it; for the fact of this being the great provision region, and located in the centre of the Union, must, in time, regardless of artificial circumstances, give it the control, not only of the policy, but of the capital and commerce of the whole country; for labor will sooner or later perceive and appreciate the advantages of locating as near as practicable to the point where the necessaries of life are produced.

We have digressed somewhat from our subject; but the article of Indian corn is so purely American, and the region of its production so peculiar in its relation to the other parts of the Union, that we felt almost compelled to notice it, as one of the prominent elements of American greatness.

The cotton plant, (*Gossipium*,) is another remarkable instance of the effects produced upon plants by transferring them from one climate to another. This plant is perennial in the torid zone, and grows there to a sufficient size to be denominated a tree; as it is removed towards the north, it gradually diminishes in size, and after passing the latitude of about thirty degrees from the equator, it changes from a perennial to an annual plant; and losing the fibrous tissues which belong to the tree, it becomes herbaceous.

As it progresses towards the north, it continues to diminish in size, until reaching the latitude of from thirty-seven to thirty-eight degrees, it ceases to reproduce itself. In tracing its habits and economy we discover that in the torid zone, where the life of the plant is protracted to many years, it does not seed so abundantly as it does when, by change of climate, it becomes an annual plant; for the reason that there is less necessity in the former case of making provision for the perpetuation of the species. Furthermore, in the torid zone there is no necessity of protecting the seed when ripe, so as to preserve them until a particular season of the year; therefore, they are smooth, and, with the fibre, which is very loosely attached to them, fall from the pod almost as soon as it is open. When the plant becomes annual, the fibre closely adheres to the seed, and serves as a protection against moisture, and in the more northern parts of the cotton-growing district, the seed, with the fibre attached to them, remain in the pod all winter, and are thereby preserved in a sound condition. Thus we perceive a series of calculations, apparently the result of a reasoning faculty, all tending to the protection of the plant against the change of climate. Like Indian corn, it has its region of greatest productiveness; which, in the United States, extends from about latitude thirty-one to about thirty-five north; and it may also be observed, that, like Indian corn, in another respect, the further north it is planted, the greater is the number of plants which are necessary to be grown on a given quantity of ground, to insure a profitable crop. No other material, so suitable for clothing, which has yet been discovered, can be produced in so large a quantity, upon a given area of land, as the article of cotton; and in no other country are the seasons so favorable for its production, as in the United States, except perhaps in some parts of South America. This is another important element of our national greatness; and it is worthy of observation, that the regions of indian corn, and of cotton, are not only in close proximity, but, that they run into each other, and give us the control of the two greatest staples known to man, the one to feed, and the other to cloth, the inhabitants of the earth.

The Irish potatoe, (*solanum tuberojum*) presents another remarkable instance of the effects produced upon plants by a change of climate, This plant is of little value within the tropical climate of America, where it was first discovered by Europeans; but when transferred to, and cultivated in colder climes, it becomes one of the most prolific food bearing plants known to man. It is a fact generally known to the people of the United States, that the potatoe gradually improves in quality as we proceed from the gulf of Mexico to the northern Lakes. This improvement in the quality of the potatoe, we suppose to be produced by the economy of the plant in protecting the tuber from the greater degree of cold in the more northern latitudes. It is a common practice with the planters of the south to procure seed potatoes from the more northern districts; and no one doubts, that, the first crop from these seed is much better than potatoes grown from those raised in the south. The potatoes raised the first year from northern seed are considered but little inferior to those produced further north; after this they rapidly decline, and in two or three crops become adapted to the climate and are no better than other southern potatoes. This plant propogates from both the flower seed and the tubus; this provision in its economy evinces the extreme care which nature has taken to ensure the perpetuation of its species against accidents which might possibly happen to the seed produced from the flower. The inherent, and natural mode of propogation is by the flower-seed, and the tuber is a mere adjunct, to be used as an expedient in case the flower seed should fail; and is to be considered simply as a part of the old stock.—Hence, in time, the offspring from the tubus is liable to decay, upon the same principle that a particular variety of fruit decays by being propogated for a long time by grafting.

From this view of the economy of the plant, we are naturally led to submit a few suggestions upon the subjet of disease known as the "Potatoe-rot." When we subject a plant to cultivation, it is important to study its economy, and understand its native or normal habits; to the end that we may give them the proper direction without do-

ing too great violence to its nature. Therefore, to insure the largest, and most permanent advantage from the culture of the potatoe, we must conform to the original economy of the plant, by propogating from both the seed and the tubor. The produce of the first year from the flower seed, is too small for the purposes of food, but it should be frequently raised for the purposes of planting; otherwise, violence will be done to the economy of the plant, which will induce a tendency to decay; and although the race may survive for many years, yet from its enfeebled condition it is rendered liable to injury from causes which would not affect it, if it were in a more healthy state.

It becomes less capable of resisting unusual changes of temperature, and unusual seasons of draught or moisture, it is more choice in its location, and requires a soil and culture congenial with its diseased condition; and, finally, it is more liable to the attack of insects, and the fungie, many of which are doubtless bred upon the plant by reason of its state of incipient decay. Many causes have been assigned for the potatoe-rot, and some of them are probably true, but we think these must all be regarded as proximate causes merely; and that the first cause is the violation done to the economy and habits of the plant in continuing to produce it from the tuber beyond the time limited by the laws of its nature; and until this cause is removed the plant will be liable to fail from many causes and accidents which would never happen, or, if happen ing, would not affect it were it in a healthy and vigor ous condition.

Aware that many learned men have been ingaged in the investigation of this subject, we have offered these views with diffidence; but believing that they are predicated upon true principles of natural economy, we submit them for what they are worth. A few years of experiment and observation would be sufficient to test the principle, and if it should be found true, it will more firmly establish the value of the Potatoe, as well as the capacity of the potatoe producing districts to sustain their population; and besides restoring the inhabitants of those districts to a state of plenty, it will impart con-

fidence in the future prosperity of the country. The people of the United States as well as of Europe are deeply interested in this subject; for, notwithstanding the potatoe has not suffered so much here as in Ireland, yet, if the cause of this disease be what we have supposed, it must soon become destructive to the crop here as well as in other countries; and the sooner the true cause can be ascertained the less will be the danger of suffering from it.

The potatoe is another of the great staples of America, and takes its true position on the northern confines of the corn growing region; and will enable our most northern districts to support a population much greater in numbers, than could have been sustained by the growth of any other plant in that region. By the culture of the potatoe our most northern districts are capable of supporting as dense a population as almost any other part of the Union; provided, the health of the plant can be permanently relied upon. Owing, however, to its bulky and perishable nature, it can never enter largely into commerce so as to make it a sourse of great wealth to the country.

It is a very remarkable fact in the history of the potatoe, that the plant should have been produced by nature in a climate so different from that which is best adapted to its usefulness, and, that, from being little better than a worthless weed, it should become the means of supporting so large a portion of the human family, not only on the continent of its discovery, but in Europe and Asia also.

The history of many other valuable plants would be found both curious and interesting, but these must suffice for our present purpose. We have selected those which are most important, as well as most familiar to the American people, that the reader might have an opportunity of comparing our observations with his own, as well as of testing the soundness and accuracy of our deductions.

The meun annual temperature of a given district of country cannot be relied on as a correct indication of its suitableness to the production of a particular plant; to en-

able us to judge whether a certain plant will succeed in a given climate, we must first understand its habits and economy, and by ascertaining both the mean and extreme temperature, as well as the duration of winter and summer, and also, of spring and autumn, we can then form an opinion in regard to its adaptation.—In the United States, the difference betwen the mean temperature of winter and summer is much greater than in Europe; hence many annual plants which require but a short time to grow and ripen, are produced in great perfection in this country, which would not mature in those even where the mean annual tempearature is perhaps much higher. On the other hand, many perennial plants will stand the mild winters of Europe, which cannot survive the frost of our climate of equal mean temperature.

The meteorology of a country exerts an important influence upon plants; and should be studied and understood by all who are engaged in either agricultural or or horticultural pursuits. The quantity and frequency of both rain and dew are influenced by causes readily ascertained by observation, and are generally determined by the peculiarity of location. In a country which is diversified by mountains, or high hills and deep vallies, a very short distance frequently makes a great difference in the quantity of rain that falls, especially in summer, when rain is most required.

Dew is formed more abundantly in vallies and near water courses, than in more elevated and exposed situations; and is favorable or otherwise to the growth of plants according to their nature.

Winds, also, exert much influence upon the growth of vegetation by accelerating evaporation, and depriving succulent plants in dry situations of the moisture necessary for their more perfect developement; elevated table lands, or, other localities exposed to constant or unusual currents of wind, are therefore unfavorable to the growth of plants which require much moisture. And furthermore, unless these winds should come from the direction of the Equator, they lower the temperature in the spring season, and greatly retard the growth of tender plants.—

We have frequently observed the growth of the young cotton plant to be materially affected in the northern part of the cotton growing region, by exposure to western winds.

All these meteorological phenomena, as well as change of climate, tend more or less to modify the habits and economy of plants; and they are therefore highly worthy of the observation of every individual who is in any way interested in their cultivation, either for use or ornament.

A thorough knowledge of these subjects would save much labor as well as expenditure that is often lost by experiments, which, owing to physical causes can never succeed; and would enable the agriculturist to select from the whole vegetable kingdom the plants which were best adapted to his particular locality.

From some one or more of these causes it often happens that a certain plant which succeeds well in one locality cannot be profitably produced upon a neighboring farm; and hence we frequently hear it said that an individual is not lucky in producing some particular plant. This want of luck, is, doubtless in many cases, owing to the want of skill and industry; but it is nevertheless true, that many individuals labor, through perhaps their whole lives, against some of these causes, without ever having discovered the reason of their failure. And such must continue to be the case, until the agriculturist shall become better informed in regard to these subjects; and in the mean time, the word "unlucky" should be understood as implying ignorance, rather than mischance, or accident. To the individual who should desire to purchase a farm for the purpose of producing any certain plant, a knowledge of the local causes which influence its growth, would be of great importance in directing him in the choice of a suitable location.

All the cultivated fruits are very choice in their location; and some of these are so peculiar in this respect, that no artificial means have been found sufficient to make them productive and well flavored in locations uncongenial to their nature. Some of the European fruits have hitherto resisted all our efforts to naturalize them, so far

as to make their cultivation profitable in this country; and this is especially the case in regard to the grape.

Having heretofore neglected our own native varieties, we are but just beginning to learn, after the experience and disappointments of two centuries, that foreign grapes can not be successfully cultivated in the United States. Had this fact been known and appreciated one hundred years ago, many varieties which have no doubt been destroyed and lost, would have been saved, to the great advantage of the country; and we should, in all probability before this, have been so far advanced in the business of grape-growing as to have produced a large portion of the wine required for our own consumption. This, besides being an important source of national wealth, would have had the moral effect of lessening the use of ardent spirits in the grape-growing districts. It is wonderful, that it should not have occurred to the people of the United States, in all this time, that there was some physical cause controlling this subject which could not, in the nature of things, be removed. And observing, as they must have done, the abundance and variety of native grapes which grew in almost every part of our territory, it is still more wonderful that they should have neglected for so long a time to cultivate and improve them. But such has ever been the blindness of the human mind, that many of the most valuable and obvious gifts and provisions of nature have remained overlooked and neglected for ages, until by accident or necessity they have been discovered and improved.

This delusion in regard to the cultivation of the foreign grape, however, has at length been dispelled, principally through the intelligence and persevering enterprise of N. Longworth, Esq., of Cincinnati, and others, who deserve the gratitude of the American people for their labors in thoroughly testing the value of both the foreign and native varieties. From these enlightened exertions, history will date the origin of successful grape-growing in the United States; a branch of industry which in time must exert a most salutary influence upon the habits and morals of the people, and add greatly to the wealth of the nation.

Light exerts a powerful influence on plants throughout every stage of their growth; and it is so intimately connected with their habits and economy, that the nature and extent of this influence is an important subject of consideration. The influence of light upon plants has no doubt been observed by almost every one who is at all acquainted with vegetation; but as yet, few seem to have studied its importance. That this influence has no relation to the heat which usually accompanies the rays of the sun, we think is sufficiently proven by the fact that, when a plant germinates, or is placed in the most remote part of a cellar, it will invariably incline to the direction of the light, no matter how feeble may be its rays.—Under such circumstances, we cannot imagine that the least appreciable warmth can be imparted by the light. The buds of most tender plants are attracted towards the sun, and follow its course throughout the day; the trees upon the edge of a forest incline towards the open space; and the time of ripening, as well as the flavor of fruit, is much influenced by its exposure to light. Indeed, the whole vegetable kingdom seems to abhor darkness, and appears to be ever struggling to avail itself of the greatest quantity of light which can be obtained.

These facts have suggested the consideration of a subject, which as far as we know has never been treated by any writer in connection with the habits and economy of plants. We allude to the influence which the moon is supposed to exert over the vegetable kingdom. The opinion that the moon exerts an influence upon vegetation, although ridiculed as absurd and superstitious, prevails in the mind of a very large portion of both the people of Europe and America and some of the most intelligent and successful agriculturists of our acquaintance have been in the habit of conforming this time of planting many varieties of seed to the particular stages of the moon; yet we never conversed with any of these who pretended to assign any cause; they merely believed in the *effects*, but the cause remained a mystery.

The discovery of these effects was in all probability the result of observation merely; and a belief in the influence of the moon having been established upon that

ground, it has been acted upon and transmitted from age to age. Many ancient customs which we are wont to denominate superstition, have no doubt been established on the same foundation: they should be respected for their antiquity but not blindly followed without investigation. By instituting a new series of observations, their truth and utility would be tested, and if they should be sustained by accurate observation, their benefits would be enlarged; but if not thus sustained, the public mind would be benefitted by relieving it from error.

That the light of the moon exerts an influence upon vegetation can scarcely be doubted: proceeding upon this proposition we must arrive at the conclusion that, if this influence is beneficial, the growth and value of a vegetable would be increased by planting the seed at a time when the more important and critical stages of the plant would receive the greatest quantity of light. Suppose for instance that the germinating, the flowering, and the ripening stages should be most benefitted by light: in this case, by observing the length of time which a certain plant under ordinary circumstances requires to mature or ripen its fruit, the time of planting might be so arranged as to bring one or more of these several periods within the light of the moon. If it should be established by observation that the germinating state was the most important, in that case the calculation need proceed no further than simply to determine the stage of the moon when this process was best promoted.

Admitting the influence of light upon vegetation, we conclude that a plant which should come up at a time when the moon shone during a considerable portion of the night, and was on the increase, would grow with more vigor than if it should come up when the light of the moon was decreasing. Upon this principle we may perceive that the growth and development of the root, as well as the stem and fruit, would be affected by a greater or less quantity of light. For instance, we have frequently heard the remark that turnips and other root-bearing plants had run too much into foliage, and therefore, the roots were of but little value. Now if that stage of the plant at which the character and development of

the root is determined, should happen when the moon afforded the greatest quantity of light, the growth and development of the stem and foliage would be stimulated and enlarged at the expense of the root.

We do not wish to be understood as offering any opinion in regard to the best time of the moon for planting the seed of any particular vegetable; our remarks upon this subject are designed to illustrate the effects of light upon the vegetable kingdom, rather than to examine the details connected with its application to the growth of any particular plant.

If, however, this theory of the influence of the moon upon plants should be correct, the practical farmer will have no difficulty in applying it to any plant which he may desire to grow; and by instituting a series of observations, he would in time be able to avail himself of all the benefits of the moon, as well as of the earth, for the purposes of agriculture; and a belief in the influence of the moon would no longer be considered ridiculous and superstitious.

The agriculturist who possesses a thorough knowledge of the economy and habits of plants, and the various influences to which they are subjected by physical causes, is not only in a condition to make his labor more profitable, but has enlightened his mind by one of the most pleasing and interesting subjects in nature; a subject in which the design of the Creator is so obvious that he could not doubt if he desired to do so. Unlike chemistry, geology, and other sciences connected with agriculture, this requires but little acquaintance with books: it is written in legible characters in the book of nature; and, once initiated, the student requires neither teacher nor glossary to define its meaning. The illiterate ploughman, whose mind shall have been directed to the subject, will quickly learn to read and comprehend the works of nature. What a relief must it be to the mind of the laborer to converse with and receive instruction from those things which are connected with his daily employment; instruction, too, so pure, so refined, and so unalloyed by human passion, that it cannot fail to improve his heart and make him a better man.

We ardently desire that the tiller of the ground should at least keep pace with the mental and moral improvement of those engaged in other industrial pursuits. To do this he must avail himself of every advantage which may be derived from the discoveries of the age, and also make himself acquainted with the principles and agents connected with his employment. If he neglects to do so, he cannot expect to maintain a position in the progressive improvement of the age equal to that of those who are engaged in other pursuits; and instead of occupying, as he should, the highest position in society, he must take his station in the lowest.

ARTICLE IV.

WESTERN STAPLES.

Wheat and Flour, Indian Corn, Barley, Oats and Rye, Hemp, Tobacco, Lead, &c.

The value of the exports of a country, is the only true criterion by which we can judge of its ability to purchase and pay for foreign products; therefore, it is important that every individual should possess correct information in regard to both the exports and imports. It is mainly owing to the non-observance of this proposition that our country has so frequently suffered from pecuniary revulsions; and, that so many individuals are unsuccesful in pursuits which to the common mind appear plausible, and wisely selected.

Appreciating the importance of correct information upon this subject, we design to lay before our readers all the authentic information which we can procure in relation to the exports and imports of this part of the Mississippi Valley.

The difficulty of collecting facts in time for our first number prevents us from doing more at present than to notice the quantity of some of the principal staples that have been annually received at St. Louis, for a few years past. We impart our information as we receive it, but we are assured that it comes from the most reliable sources.

Owing to the want of more thorough information in

regard to the subject, we shall only make such deductions as may seem to flow naturally from the facts before us, and leave our readers to draw their own conclusions in regard to prices.

Wheat and Flour.—The recent distresses of Europe, added to a rapidly increasing home demand, have given an importance to these articles which places them first on the list of western staples. But few years have elapsed since so little attention was paid to the culture of wheat in this and the adjacent States, that nearly every barrel of flour consumed in this market came from the Ohio river. The industry of a rapidly increasing population, however, has wrought an entire change in the trade of this article, and now, much of the wheat and flour consumed on the seaboard, beside the vast amount annually shipped from New Orleans for foreign markets, are the product of Missouri, Illinois, Iowa and Wisconsin.

The following statement will show the rapid increase in the production of wheat within the last few years. The receipts of this staple at St. Louis for the year 1843 were 558,953 bushels; 1844, 720,663 do.; 1845, 971,025 do.; 1846, 1,838,936 do.; while, judging from present indications, the amount received during the present year, 1847, will be at least 3,000,000 bushels, or nearly six times the quantity brought to market in 1843, only five years ago.

In like manner the manufacture and sale of flour have been rapidly progressive. Receipts at this port in 1843, were 81,479 bbls.; 1844, 96,203 do.; 1845, 139,282 do.; 1846, 220,457 do.; while, for 1847, they will probably reach 350,000 barrels. The manufacture of flour in this city in 1846 slightly exceeded receipts. It is the general opinion that, owing to the high price of wheat during the year 1847, the quantity of flour manufactured by the St. Louis millers will not exceed, if it equals, that which they turned out in 1846.

However flattering to our progress the foregoing statistics may be, the fact should not be concealed, that serious apprehensions exist in relation to the wheat crop of last harvest. It is generally conceded that the result

must show a very material falling off, and an advance in the wheat and flour markets, may be looked up to as a probable consequence.

Corn.—It is conceded on all hands that the crop of corn for 1847, will be larger than ever before known in the West. In addition to the more than usual quantity of soil at first intended to be planted, thousands of acres on which wheat had been sown and failed, were subsequently ploughed up and planted in corn. From this cause, the crop has been increased greatly beyond what it otherwise would have been.

Receipts of corn for the last five years inclusive, have been as follows: 1843, 81,767 bushels; 1844, (short crop,) 56,720 do.; 1845, 107,927 do.; 1846, 588,644 do.; 1847, (probably,) 1,200,000 do. The latter, of course, is not the *crop* of 1847, but of the year preceding.

The above, it should be remarked, although representing the amount brought to market, scarcely gives an accurate idea of the rate of increase in the quantity cultivated, and for the following reason: The high prices of corn which sprung up as the consequence of a scarcity of breadstuffs in Europe, induced our agriculturists to bring to market almost every bushel of their crops, not needed for home-consumption, thus diverting from other uses much that otherwise would not have found its way to market. Low prices during 1848, should they prevail, as they probably will, must produce the contrary result, and prevent much of the crop from going to market, and hence the gross receipts at this port may not exceed those of 1847,

Barley, Oats and Rye.—As these are articles mainly of home consumption, they do not require very particular notice. Receipts of Barley for 1843 were 7,785 bushels. The receipts for the present year will be about 70,000 do. Of Oats, the receipts in 1843 were 55,530 do.; for the present year they will probably reach 250,000 do. Previous to 1845, receipts of Rye were too trifling to deserve notice. In that year they reached some 3,000 bushels. This year they may be estimated at 10,000 do.

Hemp.—The culture of this article has greatly increased within the last few years. In 1843, the number of

bales received at this port was 37,523. Receipts this year will be in the neighborhood of 90,000 bales. The price, both of dew and water rotted, has ranged unusually high, being for the former, during the greater part of the year, from $80 to $90 per ton, and for the latter, from $150 to $175. Choice dew rotted, for a considerable portion of the time, has ranged from $100 to $115, and for a season as high as $130 per ton. These high prices will probably stimulate agriculturists to increase the production of the article.

The formation of the American Hemp Company of Jacksonville, Illinois, will constitute an era in the history of hemp-growing in the West. This company have furnished to the farmer new inducements to enter into the cultivation of hemp, by their illustration of the fact, that, by a process simple and easy, American hemp can be rotted, perfectly, in a few days; and that this article, when dressed in the usual manner, is equal to the best Russian; nay, better than any specimens of the latter article as yet imported into this country. The American steam rotted hemp is fairer in point of color, more flexible and soft to the touch, and is capable of bearing a greater degree of weight than any specimens hitherto imported from abroad. We may reasonably look forward to the period when our navy, as well as commercial marine, shall be entirely supplied with cordage made from hemp of American growth, and when Missouri, whose natural advantages in the production of hemp are not surpassed by those of any other State, may claim to supply by far the greater portion of such material.

Tobacco.—It is difficult to judge of the annual production of this article from the receipts, as, owing to low water, low prices, &c., a large portion of the crops have sometimes been held back, and the amount brought to market in such instances has fallen below that of a preceding year. Thus, in 1843, the amount sent to market (20,000 hhds.) more than doubled that of the preceding, as well as the following year. Indeed we think it likely, that were strict enquiry made, it would turn out that the crops of several preceding years have differed very little in quantity. Receipts at this port for 1844, were about

9,700 hhds.; for 1845, 11,564 do.; 1846, 8,588 do.; while for the present year they will probably be about 11,000 do. This shows very plainly that the culture of Tobacco does not in this State keep pace with other leading products. The crop is less certain than many others that pay equally well, and we shall probably find that as other agricultural products go on annually increasing—some doubling themselves—this one will remain stationary, or retrograde.

The crop of 1847, we learn, will prove smaller but far better, than that of the preceding year. Prices during the last year have been good, and if our information should be correct, the rates must advance during the present year.

Lead.—The high prices of this staple which have ruled during 1847, have been a mystery to many dealers. Very little of the article, comparatively speaking, has been exported; the quantity produced from the mines is somewhat greater than for the year previous; yet the price has gone on improving, until it has reached a point seldom before known in this market. The only manner in which we can account for this, is the greatly increased consumption in the way of manufacture. Meanwhile, labor seems to be diverting itself from mining, and though our mineral resources seem almost inexhaustible, still it is a matter of serious question whether if greater enterprise be not manifested in rendering available our mineral wealth, our products may not in time fall below the demand for home consumption.

Receipts of Lead for the last five years, have been at this port as follows: In 1843, 584,431 pigs; 1844, 595,000 do.; 1845, 750,880 do.; 1846, 730,820 do.; and the present year, about 800,000 do. We are informed that the consumption by the manufactories of this city, within the present year, has nearly doubled that of last, and a much larger quantity than formerly has gone to the Ohio River.

ARTICLE V.

Relative Cost of Water and Steam Power, Advantages for Manufacturing in the Mississippi Valley, Coal Fields of the United States.

The following articles which we havo taken from the Louisville Journal will be found interesting to all who feel an interest in the prosperity of the west:

The writer has instituted an inquiry into the relative cost of water and steam as a propelling power for machinery; and shows that even in New England, where the average cost of coal is 23 cents per bushel, that steam is cheaper than water.

If these calculations be correct, they establish a fact that adds greatly to the other advantages which the west possesses over the eastern states for manufacturing purposes.

Operatives can be fed in the west at from 25 to 50 per cent cheaper than in New England, the raw material of cotton, iron and wool, can be obtained at a less cost of freight, and if in addition to these advantages, the propelling power can be supplied at favorable locations for less than half its cost in the Eastern States, it would seem wonderful if all these advantages should long remain overlooked and neglected by a population so enterprising as that of the Mississippi Valley.

COAL MINES.

The Illinois bed, as it is termed, crosses the river at St. Louis, also, and is worked on both sides of the Mississippi:

The geographical map of the United States, compiled from surveys of D. Dale Owen and others, under direction of Congrss, and from other sources, by Lyell, and published in his travels, gives the boundaries of the following coal-fields:

The first near Richmond, Virginia, of very limited extent.

The second in Massachusetts and Rhode Island, which is not rich enough to compete with the foreign supply.

The third in the centre of Michigan, underlying perhaps one third of that State, and touching Saginaw Bay. Of this I cannot find any further description.

The fourth, or Appalachian, extends from the southern and interior

counties of New York, nearly to the southern point of the Tennessee river, in Alabama. Its western limit is near Pomeroy, on the Ohio river; it approaches to within about forty miles of Lake Erie, near Cleveland, and its point nearest the tide waters of the Atlantic, is perhaps from 90 to 100 miles west of Philadelphia.

On the eastern slope, in Pennsylvania, its character is chiefly anthracite; in Maryland, bituminous; and here are the richest mines of coal now known. Their value is inestimable, and is now fully appreciated.

Anthracite coal was first used on tide-water, as fuel, in 1820, and the supply sent to market in that year, was only 365 tons. In 1846, the total supply was 2,333,594 tons, and 11,468 vessels, exclusive of boats, were laoded with it for coastwise demand. The great and only drawback to the value of this coal-field, is its location in the mountains, and its distance from market. Over thirty-four millions of dollars have already been expended in making cannals, rail-roads, and other facilities for transporting the coal to points where it can be profitably used, and then the largest part of its cost is the result of labor outside of the mine. The interest on this capital, and the demand for this labor, will be perpetual.

On the western slope of the Alleghanies this coal field assumes a bituminous character. The only points at which it will be of value to us is where it touches the navigable waters of the Ohio and its tributaries. Here the coal is so abundant, so accessible, so cheaply and easily worked, that geologists and "coal viewers" have not been called on to describe its strata; and the only reliable authority I find in reference to it is in Silliman's *Journal* of October, 1835, and taken from a memoir of Dr. S. P. Hildreth. He gives this type of the field in the valley of the Monongahale.

"No less than four deposits of coal are found from the tops of the hills to the bed of the river, the uppermost is at an elevation of 300 feet and is six feet in thickness; the second is 150 feet above the bed of the river and seven feet thick—the coal of an excellent quality; the third is 30 feet above the river, three feet thick, and coal rather inferior; the fourth bed is a few feet beneath the river, six feet thick, and of superior quality."

This coal has some of the peculiarities of the flint-stone, a variety of the Scotch, and one of the Newcastle, but superior to either.

As this coal-field passes the head waters of the Sandy and Kentucky rivers, it takes nearly the characteristics of the pure cannel. On the base of the river where this coal is mined, its price aside from the rent, is from 2 to 3 1-2 cents per bushel, depending on the quantity mined.

It is much to be regretted that our States interested in this field, have not had it fully surveyed and described.

There is a coal-field in the valley of the Osage river, of surprising depth and richness. This has but recently been discovered, and but little is known of it.

The great Illinois coal-field completes the list. This is nearly of an eliptical form; underlies nearly the whole of Illinois, the southwestern portion of Indiana, and the counties in Kentucky, opposite, for 70 or 80 miles. It crosses the Mississippi about the mouth of Rock river, and then extends 15 or 20 miles on the western bank of the Mississippi; its edges on the Ohio are near Fredonia, on the east, and Shawneetown on the west. Its strata are probably parallel to each other, with a rapid dip westardly, and from a few inches to 8 or 10 feet in thickness. Its area, is not much, if any, inferior to that of all the coal-fields of England. As I believe, and think I can show that this is to be *the* great manufacturing district of the world, as this city is within, and perhaps to be indefinitely enlarged by its influence, I trust that you and your readers will bear with me while I endeavor to give all the facts connected with it, and to present all its aspects for examination.

Yours, S.

RELATIVE COST OF WATER AND STEAM POWER.

Such have been the improvements, of late years, in the steam engine and in the economy of fuel, that we find steam gradually taking the place of water as a motive power. The object of the present article is to show the *present* relative cost of each. It will, however, be borne in mind, that the cost of the one is the same now and will always be the same as it was centuries ago; yet, while I write, even, the cost of the other may, by some new invention, be materially lessened. Power, for use of large manfactories, or extensive works, must be *certain* as well as ample; that of water must, therefore, be on large and rapid streams, with great volume and fall. In the West, we have but very few waterfalls where manufactories can be placed. The best, perhaps, are at Beaver, Pa., and at the Muscle Shoals in Tennessee. On the eastern slope of the Alleghanies, most of the rivers are short and are comparatively dry in summer. Many of the New England manufacturing corporations have been obliged, at vast expense, to purchase lands and form reservoirs sufficiently large to furnish water in dry seasons. The Eastern Mountains and hills are so steep that water rapidly runs from

them to the sea, and in the spring, when the snow is melting and the ice breaking up, should heavy rains fall, the force of the flood carries away every obstruction. To avoid this danger, the dams and locks must be of great strength, and necessarily, costly; while the mills, if possible, are placed off the river and take their water by canals. As the falls are falways on rocky formations and generally, at the gorges of hills, this canalage and excavation of sites for buildings and the making of roads to the spot, is attended with great expense. Where the falls are near tide-water, the work of the mills has often to be suspended.—Lowell, perhaps, is more exempt from this difficulty than Dover, New Market, Salmon Falls, and many other manufacturing sites in New England; yet Mr. Miles, in his history of Lowell, says: "Eighteen of the twenty-seven cotton mills in the city are situated on the river side, and, once or twice in each year are obliged to suspend part of their works, sometimes for days together, in consequence of back-water." Occasionally the ice carries the dam away, or breaks the water-wheel. In such cases the pay of the operatives goes on, or a higher price is put on the work of the remaining days. To estimate the loss, per diem, resulting to a company from suspension of its works, I give some of the statistics of the Merrimack mill. This mill has a capital of $2,000,000, and employs 1,737 operatives, at a cost of, say $240,000 per annum, interest on the capital $120,000—making $360,000 per annum; or nearly $1,000 per diem would be the loss by the suspension of a single day, aside from the inconvenience. Again, the water-wheels must not be exposed to the frost, but enclosed in masonry and often in excavations in the solid rock. I am not aware that any water-power in New England is cheaper than that at Lowell. This now costs $5 per spindle. At first, the Locks and Canals Company relied for its profits mainly on the advanced value of its lots and the profits on building mills and machinery for other corporations, and therefore put the price of the power at $4 per spindle—probably but little over actual cost; the purchaser being at the expense of taking the water from the canal to and away from the mill, and this has, in some instances, been very expensive.

Nearly all these water-falls are at considerable distance from the highest point of navigation, or the sea; and the estimate is within the truth when I give twenty-six miles (the distance from Lowell to Boston) as the average distance of the New England factory from the point where the cotton is landed and the depot of its goods—both of which are usually transported on the on railroads. The freight from Boston to Lowell was, and I presume now is, $3 per ton. A cotton mill of ten thousand spindles will turn out two tons of goods a day—say six

hundred tons per annum; 100 pounds of cotton will average 89 pounds of cloth; 666 tons of cotton are therefore required by the mill; 1,266 tons cost, aside from drayage, (a considerable item,) $2,532 in transportation between the mills and where the goods are sold. Aside from the extra cost of water-power, this mill would require a capital of not over $250,000—perhaps $200,000 would be sufficient. This item then is 1 or 1-4 per cent. on the capital invested. Mr. Montgomery, in his work (published in 1840,) on the comparative cost of manufacturing in England and America, says:

"The attention of manufacturers in New England has been for some time directed to the advantages of steam as a means of propelling machinery. *the advantages of a good location being considered equal to the extra expense of steam power.*"

Another important item of expense avoided, by a steam factory, is that of heating a mill. Mr. Montgomery gives the average cost of this at $467 80 per annum for a a mill of say 4.000 spindles. Six hundred dollars per annum may then be put down as the cost of heating a mill of 10,000 spindles. And it is not only necessary that the atmosphere in the mill should be at the proper degree of temperature, but of the proper dampness, so that the thread shall run smoothly. Both purposes require a large part of the fuel and machinery used in a steam mill.

The foregoing are not all, but are the most important difficulties attending the use of water power for cotton and woollen factories. Most of the difficulties are found wherever this power is applied; and as a general rule among engineers, at any position where coal can be had at ten cents a bushel, steam is as cheap as water power at its minimum cost. Such is the theory. The facts seem to go beyond this; for in New England, where water power is so abundant, the largest cotton factories, now being erected, are to have steam as a motive power; of this character are the Naumkeag mill at Salem, and that at Portsmouth; the first of 40,000 and the last of 50,000 spindles, and these are the largest in the world. At Fall River, Bristol and Newport steam factories are in successful operation. The fine goods of the Bartlett steam mills, Newburyport, have a wide reputation. The recent erection of the James mill, at the same place, shows the success of the former; and within the last year the escape steam of a new mill at Lowell is drowning the noise of the falls of the Merrimack. Let it be remembered that coal in New England costs, on an average, twenty-three cents per bushel.

As before stated, the water power at Lowell now costs $5 a spindle;

$50,000 of capital is to be invested in power to run a mill of 10,000 spindles.

The interest on this, per annum, is - - - -	$3,000
Now add the cost of heating the mill. - - - -	600
And the cost of transportation, - - - - - -	2,532
And you have one side of the question as against steam,	$6,132

I cannot fix, with precise accuracy, the steam power and fuel required for a mill of 10,000 spindles. The only authority before me, gives this estimate for one of 3,7000 spidles, with the necessary machinery for preparing the cotton and manufacturing the cloth: A high pressure engine of 40 horse power—length of stroke 4 feet, diameter of cylinder 1 foot—makes 40 single or 20 double strokes per minute; these or four round boilers, 15 feet long by 2 1-2 feet in diameter, requiring 200 gallons of water, and consuming 1 1-4 chaldrons (45 bushels) of bituminous coal per day—pressure of steam sixty-eight pounds to the square inch. To do double the work does not, as I am told, require double the power and nothing like double the fuel. This estimate was made eight or nine years since; within that time very important improvements have been made in the application of steam power and the use of fuel; and probably I may safely say that an engine of 90 horse power, requiring 80 bushels of coal, is sufficient for the mill of 10,000 spindles.

Then 80 bushels of coal for 300 days at 23 cents per bushel,	$5,520 00
Add salary of engineer,	500 00
	$6,020 00

Showing an advantage in favor of steam, *from coal at twenty-three cents a bushel*, of $112 per annum. The cost of an engine of 90 horse power, boilers, belting, pipes, &c., not required for the purposes specified in the other, would be probably not over $9,000, while the cost of communicating the water power to the machinery would be at least 17,000, Montgomery, in the work already quoted from, states the cost of two water wheels, equal to eighty horse power, including gearing, gates, shafting, belting, &c., at $17,000, The Tremont and Suffolk mills at Lowell contains 12,000 spindles, make coarse goods, and have six water wheels; the cost of each wheel between $3,000 and $3,500. entirely exclusive of the cost of excavating and walling up the branch canals to and from the mills.

It is a mooted question which will last the longer, the wheels or the engine; but give $3,000 to equal the difference, and there is the interest of $5,000 to add to the advantage before stated.

In a future paper I may give additional facts connected with this subject. My purpose is to show that New England cannot retain her monopoly of manufactures, and that, in cheapness of coal, this valley of the Ohio, possesses advantages for manufacturing over any other country.

Yours, &c., S.

October, 16, 1847.

ARTICLE VI.

Manufacture of Iron in St. Louis, Iron Mountain, and Iron Ore in Missouri,--Causes hindering the production of Iron in Missouri. Brass Foundries. House and Blacksmithing.

In noticing the manufacture and consumption of Iron in St. Louis, we are naturally led to submit a few reflections upon the subject of the mineral resources of Missouri; and to suggest what appears to us the cause of their having been so long neglected.

The Iron Mountain and Pilot Knob are among the most remarkable mineral curiosities of the world; and are supposed by many to contain a sufficient quantity of ore to supply the State with Iron for centuries. But it is not in the abundance merely, that the value of this article consists; for in respect to quality, it is believed to excel any other Iron produced on the continent; and, in addition to its adaptation to ordinary purposes, the Steel produced from it is susceptible of being wrought into articles of fine cuttlery. We have recently seen a penknife made of this articticle at Sheffield, England, which, in appearance, is equal to any thing of the kind that has ever come under our observation.

But, notwithstanding the abundance and the excellence of the Iron Ore in this and in other parts of the State, yet, the States of Missouri, Illinois, Iowa, and the western part of Wisconsin, are almost entirely supplied with Iron from abroad.

We have frequently inquired why the people of Missouri do not produce Iron sufficient to supply their own wants? To these inquiries we have been answered by some, that, it is owing to a want of capital; others have supposed that the country was too new, and that owing to the difficulty of procuring labor, skill and other necessary facilities, Missouri could not successfully compete with Pennsylvania and other

States in the production of this important article. That difficulties must be encountered in the commencement of the business, there can be no question; and the causes assigned have no doubt tended to hinder the progress of this branch of industry. But there is a cause more remote and yet more potent than all these, which tends not only to retard the production of Iron, but to discourage the introduction of manufactures, and the mechanic arts throughout the West. We allude to the overwhelming influence which commerce exerts over the capital and enterprise of the American people. We fully appreciate the importance of commerce, not only as an agent of the producer, but as a great social agent also; yet, as it originates from those necessities which arise from difference of climate, and the peculiar distribution of the soil, minerals, and other natural products of the earth, it is the true policy of the people of every country to limit, as far as practicable, this foreign commerce to the exchange of these natural products; and to apply their labor and capital to the development of the natural resources of the region which they inhabit.

What should we think of the intelligence of a people, who possessing an abundance of iron ore, with all the material necessary for its manufacture, should, nevertheless, raise grain and transport it a distance of from one to five thousand miles, to feed the producers of Iron; and receiving this article in exchange for their grain, bring it home to be used in the implements of husbandry. If not in fact, Missouri has in effect, been engaged in carrying on this operation, from the time of its earliest settlement until the present. We smile at the stupidity of the man, who, when going to mill, puts a stone in one end of the bag to balance the grain in the other; how far the people of Missouri have advanced beyond this practical idea, we shalll leave for the discussion of the curious.

The capital and labor employed in exchanging our products for the products of other countries, at so great a distance, leaves little in the hands of the producers to be applied to other purposes; and the attractions of commerce drawing to it the enterprize, as well as the capital of the country—the developement of its natural resources are consequently neglected. It would be unnatural for those engaged in commerce, or, in the carrying trade, to promote the production of Iron in Missouri; for this would limit their field of operation; and hence the commercial interest, at least, in the West, is in effect, opposed not only to the production of Iron, but also to the introduction of manufactures. We have little to expect from the mere capitalist, for, ever selfish and timid, he rarely embarks in any enterprise with an eye to the social good; but looks rather to the security of his own interest, by lending upon bond and mortgage. These, we esteem the true causes which

prevent the developement of our natural resources, and which retard the introduction of manufactures in Missouri, depriving much of its population of profitable employment—and the producers of remunerating prices for their products.

We intend, if practicable, to collect and lay before our readers, at an early day, a full account of the Iron of every description, received and distributed at this place; so as to enable the people of this State, to form an opinion in regard to the immense importance of working their own raw material.

From the best information yet obtained, we learn that about 5,000 tons of pig metal was used in the foundries of St. Louis in the year 1847: and that about 3,000 tons was distributed at this point and shipped up the Illinois, Mississippi and Missouri Rivers. The amount of bar and other wrought iron will be noticed hereafter.

The following is a list of Foundries in St. Louis, showing the number of hands employed, and the amount of metal used at each for the year 1847.

Name of Foundry.	*Name of Owner.*	*No. of hands.*	*Am't of Metal used.*
Mississippi, -	Gaty, McCum & Glasbey,	120	800 tons.
Broadway, -	Kingsland & Lightner,	130	800 "
Phœnix, -	Kingsland & Ferguson,	50	500 "
Egle, - -	Garison & Brother,	60	400 "
Union, -	Bridge & Brother,	50	1000 "
Franklin, -	Garrison,	15	150 "
	Fairbridge,	12	200 "
Washington, -	J. T. Doudle & Co.	50	400 "
	Smith & Co.,	20	200 "
City, -	Little & Sherwood,	20	150 "
Etna, -	Boyd,	15	80 "
11 Establishments.		537	4,680

There are one or more small establishments in this city which are not included in the above statement. There are also several Brass Foundries in the city; but we have not been able to procure correct information as to the amount of work done at them; from the best information, however, it is believed that about sixty tons of copper are consumed annually at these establishments.

No branch of business, perhaps, in the city, has increased so rapidly within the last two or three years, as that of the manufacture of Iron.

Besides the business of casting, we have a large number of smithing establishments, upon quite an extensive scale. Among these may be mentioned that of Messrs. McMurray & Dorman, who work about

twenty-five hands; and use about one hundred and twenty-five tons of bar and sheet iron per annum. C. & T. R. Pullis work about ten hands, and use about one hundred tons of bar and sheet iron. A large portion of the work done at these establishments, consists of iron railing Bank and Vault doors, Fire-Proof Safes, and other heavy articles.

There is scarcely an article of cast or wrought Iron which is required for the use of the country, that cannot be made of as good quality at St. Louis as in any of the Eastern States; and St. Louis bids fair in time to rival if not surpass, any other city West of the Alleghany Mountains in this branch of industry.

ARTICLE VII.

The Moral Uses of Plants.

The pleasurable emotions derived from fruits and flowers induce to moral action—Their impressions upon the mind of childhood—May be used for educational purposes—The effects of the association of a refined taste with labor, a source of pleasure and profit—Their uses as symbols and memorials—The living language of all nations from the earliest ages—Their tendency to strengthen and perpetuate parental and fraternal affections.

Having noticed in a preceding article the habits and economy of plants, and also some of their more prominent physical uses, we shall, according to our original design, proceed to consider the influence which they are calculated to exert upon the moral character of man.

In considering this branch of the subject, we shall only aim to note some of the more prominent and obvious phenomena, for the purpose of exciting an interest in the mind of the reader, and of calling his attention to one of the most pleasing and instructive branches of natural economy. When we carelessly look abroad upon the world of matter, we do not readily perceive its moral uses; but if we examine it more attentively, we shall discover a moral as well as a physical use in almost every object which presents itself to our senses. This is especially the case in regard to those things which are more immediately connected with the support of our existence.

By this wonderful combination of the moral with the physical uses of matter, we have always present to our

waking senses, objects inviting us to the enjoyment of moral and intellectual pleasures. These address themselves to the eye, in all the varieties of color, of form, and of magnitude; to the ear, in every variety of sound, from the whispering of the zephyr to the deep-toned thunder; to the senses of taste and smell, with flavors and odors infinite; and with soft and varied blandishments, they woo us to contemplate the boundless mysteries of nature, and to adore its author.

The vegetable kingdom is the proximate link which connects man with the universe, and is the immediate source whence he derives the means of existence. Many agents, all operating within their respective spheres, and all converging to one point, combine and concentrate their powers and properties to produce plants for the use of the animal kingdom. The combinations and chemical changes of inorganic matter; light and heat; the condensation and evaporation of fluids; all the machinery of clouds and atmospheric currents, influenced and controlled by the invisible and subtle, yet powerful spirit of electricity, have reference to this result. By the combination of these agents and properties, was produced the first form of organic matter: here was presented the first phenomana of the vital principle, and hence it has been transmitted to the animal kingdom: and when we contemplate the perfect adaptation of plants to the physical and moral condition of man, we are ready to conclude that there is perhaps as much philosophy as poetry in the idea, that they are a part of our nature, and that we sympathise with their existence. Like man, plants are endowed with both a selfish and a social nature: every organ and faculty performs some function connected with their individual economy, all tending to the one great purpose of perpetuating their species, while physical properties, acting upon their condition, supply the place of instincts. From the organic constituents of plants, man derives both food and raiment, and these constitute their principal physical uses; but they possess many properties which do not appear to perform any useful purpose in their individual economy, nor do they seem to be necessary to the existence of man: these were doubtless

imparted to them for the purpose of delighting our senses, to the end that we might not only eat and live, but that our hearts might also be filled with love and gratitude to the Creator for his benevolence. These properties must, therefore, be considered *moral*, and consist principally of flavor, odor, color and form. While these delight and gratify our senses, they excite a desire to impart the same gratification to others: this is a feeling which every individual must have experienced, and establishes the connection of a moral with the physical uses of plants.

But of all the properties of plants, those of color and form are the most purely moral, and make the strongest impression upon the mind: the varied and delicate colors and forms of plants, of flowers, and of fruit, excite emotions of *beauty*: that

> "Source of all delight
> That kindles in each human breast
> Love, and the wish of poets, when their tongue
> Would teach to other bosoms what so charms
> Their own."

The emotions of beauty are so identified with our moral emotions, that they invariably give rise to a desire of imparting them to others, that *they* may experience the same pleasing delight, and sympathise in our pleasures. Where is the heart so selfish, and so void of sympathy, that it does not feel a desire to exhibit to others those objects which excite emotions of beauty in itself? Here, then, is one great source of moral and social action, flowing from the vegetable kingdom, and moving our hearts to acts of benevolence; and although the benefits may appear trivial, and be esteemed as of little worth by men of grosser minds, yet are these benefits diffused throughout the moral world, and although unperceived, enure to those who affect to despise them.

These moral properties of plants are so varied and abundant, that they are available to the whole human family; and the pleasures which they impart may be enjoyed by an indefinite number of individuals without in any way impairing their qualities: and they decay none the sooner from having thus contributed to our delight. In this respect they afford a happy illustration of the attribute of Divine Love which ever flows on without di-

minishing the fountain whence it issues. But like every other gift of nature, man is required to qualify himself for its enjoyment by cultivating his taste. If we disregard these moral properties, and should look upon the vegetable kingdom as the source whence we derive our physical support merely; those vivid emotions of beauty which we experienced in childhood, will cease to arise from the exhibition of these interesting objects, and we shall be deprived of one of the most refined sources of pleasure which has been designed by a kind Providence for our enjoyment.

When we contemplate this boundless source of pleasure which is common to all; the ordinary accidents of wealth and poverty lose their importance, and we should pity the individual who would exchange a refined and cultivated taste for flowers and plants for all the wealth which could be acquired by a life of labour and anxiety. The cultivation of such a taste however, would in no wise lessen the profits of labour; so far from doing so, it would be the means of improving our knowledge of the health and economy of plants, and enlighten our minds in regard to their culture; we therefore reap a two-fold harvest, the one of profit the other of pleasure.

The bright colors and beautiful forms of flowers and fruits are among the earliest objects which attract the attention of the infant mind. This is an important fact and deserves to be noted by the philosopher for the purpose of discovering its meaning; it would be little less than Atheism to conclude that a phenomenon so universally observed, should happen without a benevolent design, and from the universality and vividness of the emotions which children evince from the exhibition of color and form to their observation, we conclude that these emotions were designed for important purposes.

Then what are those purposes? We answer, these flowers and forms are designed as the pictures, and embellishments of the title page to the Book of nature, to excite the mind to study the subject; and they plainly indicate that the vegetable kingdom is the first lesson in the book of human knowledge. Here the design of

the author is more obvious, and the illustrations more simple and practical than in any other part of Nature's works.

The infant mind is inquisitive and curious to know the cause of every thing which attracts its attention and is quite capable of understanding at an early age most of the important principles connected with plants as well their various uses.

We have learned to embellish the first books for children with pictures, for the purpose of interesting them on the subject which we desire to teach them; and also, for purposes of illustration: in this we have followed nature, but we have neglected to use the more interesting, and instructive symbols which she has designed as incentives to the young student in her own works.

Were children instructed in the economy and habits of plants, and were their minds enlightened in regard to their uses, and the intimate relations which they sustain to the human family, it would open to their minds a source of knowledge which could not fail to exert a most important and salutary influence upon their moral character. Such knowledge would give them a just idea of their physical and moral relations, and enable them to appreciate the necessity of physical employment, it would be the best field for intellectual exercise and improvement and unite the dignity, and refinement of science, with the exercise of labor, and harmonize the physical with their moral natures.

How different from such a condition is that of him who, without such knowledge, and who with taste uncultivated, and blind to the operation of the laws of nature, is driven by necessity, or perhaps by parental command not less stern, to labor for the means of existence. Thus cast from the Eden of his childhood—uninstructed in all which could impart pleasure to his employment—he goes forth with the curse of ignorance upon his head, to eat of the herb of the field as doth the ox; and in the sweat of his face to dig for his bread. Such an one can find no pleasure in his employment. His heart is void of gratitude; all his aims are selfish, and tend to a state of moral degradation.

We invite those whose duty it is to give direction to the infant mind, to observe the delight which it takes in the colors and forms of flowers and fruits, that they may avail themselves of these early emotions for the purpose of giving tone to its moral character. If this season is permitted to pass without improvement, these objects will lose their interest, and give place to others less refined and less instructive; and having once departed from nature's pure fountain, where the gushing waters first meet the light, he can never return; and let him thirst as he may, he must ever after drink from the stream below, mingled with the impurities through which it has flowed.

The cultivation of flowers and plants from motives of taste and moral improvement, is the most refined of all the arts; and while it affords bodily exercise and health, it restrains the mind from vicious tendencies, and is calculated to impart a moral tone not less pure than the germ of the unblown flower. And although the most social of all pursuits, it is perhaps the best corrective of that heartless and demoralizing state of society which consists of personal associations without sympathy; of forms without affection; and of professions without sincerity;—where all have studied and practiced deception, until the vices of each are known, and falsehood can no longer conceal depravity.

There are, however, other uses, which plants possess, still more refined, and more purely moral, than those which we have noticed. We allude to their uses as symbols and memorials, in which they supply the place of articulate sounds and written records. These uses have doubtless been understood and appreciated from the earliest ages; and flowers or plants, when happily used as symbols, speak a language and convey a meaning, which are understood by all nations, and are in no danger of being perverted by translation. It is the living language of all mankind, and produces the same emotions, and imparts the same ideas now, that it did three thousand years ago. Solomon, the wise man of Israel, spoke of trees, from the Cedar tree that is in Lebanon, even unto the Hyssop that springeth out of the wall; and he wove into song the Rose of Sharon and the Lilly of the Valley;

using these beautiful emblems—the one of love, and the other of purity—to symbolize the Christian Church. Since the days of Solomon, many languages have decayed, and all have suffered corruption; but the Rose of Sharon and the Lilly of the Valley, remain the same bright emblems of love and purity, as when they first unfolded their petals in the garden of Eden; and thus shall they remain until the end of time. And as each returning season shall display their bright colors, and as often as man shall pause to contemplate their beauty, he shall be reminded of the pure and universal love of the creator and author of his being.

Flowers and plants are among the things of our earliest observation, and are intimately associated with our first emotions of love, of joy, and of gratitude. The vivid emotions produced in the mind of the child by the bright colors and forms of flowers and fruits, as also by their grateful odor and flavor, are mingled with its filial affection, and become so blended that they ever remain united and inseparable. Therefore, the flowers which bloom, and the fruit which ripens around us each returning season, throughout our pilgrimage, remind us of a parent's love, the affectionate admonition, and of the fervent supplication, that we might be delivered from evil. Where else shall we find moral restraint so potent, or counsels so pure and disinterested?

The ardent passions of youth, or the absorbing pursuits of manhood, may perhaps for a time prevail, and repress these influences; and the flowers may fade, the fruit decay, and their forms perish, yet each returning season shall restore them in all their primal freshness, bearing in this, their renewed state of existence, the same faithful records which were first engraved upon their predecessors. And when the ardor of youth, and the fierce struggle of manhood, shall have yielded to the calm philosophy of riper years, wearied with vain pursuits, and, haply, with a conscience not quite at ease, the man shall turn aside to seek these emblems, and purify his heart, and revive his affections, by refreshing his mind with early associations;—then may he remember how oft in the days of his wanderings, when, beguiled by his passions,

or lured by thirst of gain, or perhaps goaded on by ambition, these silent yet eloquent monitors have met him in the way; and, forwarned by their admonitions, he paused in the pursuit, and turning aside, escaped from evil.

Then cultivate plants and flowers as family records—as memorials of affection. They shall impress upon thy heart and thy affections their own purity, and serve as a talisman to protect thee from error; and, associated with thy parental virtues in the memory of thy children, they shall ever speak of thee and of thy counsels.

The fraternal and social affections, nurtured and developed in the midst of plants and flowers, shall also be perpetuated by these memorials. The first flowers of spring shall call their spirits from every land where fortune may have led them, and, meeting again in the garden and groves of their early home, they shall renew the pure affections of childhood; and hearts, it may be, that have wandered from virtue, or perhaps have been crushed by disappointment and affliction, shall return;—*those* purified and refined from their errors; and *these* with hopes renewed;—*all* shall be refreshed, and shall gird themselves with higher resolves and firmer hopes to overcome the perils which await them.

ARTICLE VIII.

Boat Building at St. Louis.

Situated as St. Louis is, in the very heart of this great valley, and on the bank of its largest river, and below the confluence of the Missouri and Illinois rivers, thus commanding the entire trade of a country teeming with agricultural richness, and mineral wealth, she must necessarily ultimately become one of the largest Manufacturing and Commercial marts on the American Continent. Most of the products concentrating here now, and for years to come, must consist of the raw material, such as Corn, Wheat, Tobacco, Cotton, Sugar, Molasses, Lead, Iron, &c., &c., articles generally heavy and bulky. Hence the carrying trade must continue to increase, to an extent almost inconceivable,

as the resources of the country are developed, and steamboats and steamboat building must rank among the great interests of the West. Many of our citizens are now steamboat owners, and a vast amount of capital is invested in that particular branch of business. Hitherto, many of them have sent abroad to have their boats constructed, by which an immense amount of capital has been annually drawn from the business channels of St. Louis, which might have been employed, if not more profitably to the capitalist, certainly more beneficially to the community, to the same purpose here, while it would have promoted St. Louis industry and prosperity. Is it not time that this economy of home industry should be properly understood, and if possible, a radical change effected?

From the best information we can get, we find that all the essential materials for building, can be had here in very great abundance, and that our St. Louis mechanics can and do construct as good and fast running boats as can be built at any other point in the West, or elsewhere. It is only necessary, therefore, that these facts should be generally known and appreciated, to save an immense amount of capital annually to this part of the West.

It is with a view of calling attention to, and encouraging, this important branch of mechanism to St. Louis, that we present the following sketch of the entire number and tonnage of Steamboats built at this point.

The following list, up to the first January last, we take from the St. Louis *Union:*

"Among the earliest boats built at this point were the *North St. Louis* and *Little Eagle*, by Glenn. These were small boats, and we have no means, at this time, of ascertaining their tonnage or cost. They were built in 1833 and '39.

The *Chicago* was about the next. She measured 150 tons, and was built by Case. She is now running on the Arkansas river.

The *Charlotte*, 250 tons, was soon after built by Case. She has been lately repaired at Pittsburgh, and is believed to be running on the Ohio river.

The *Potosi*, 120 tons, was built by Case, in 1842. She has lately been torn up, and her machinery put into the *Cora*, built in the Upper Mississippi, and finished at this port. The Cora measures 144 tons, and cost about $11,000. Like the boat just named, some of the boats named below, were built elsewhere, but brought to this port to receive their machinery and finish.

The *Inda* was built in 1842. She measures 360 tons, and is still running.

The *Henry Bry* was built by Emerson, 1842 or '3. She measured 350 tons, and cost about $17,000. She took on the machinery of the *Leavenworth*. The *Bry* was sunk in the Lower Mississippi about eighteen months ago.

The *St. Louis Oak*, built by Coonse, in 1842, measures about 100 tons, and cost about $14,000. She is yet running.

The *Monona* was built by Hathaway in 1843, She measures 175 tons, and cost about $15,000.

The *Luella*, built by Murray, in 1843. She measures about 150 tons, and cost about $12,000. She is an excellent boat, and quite celebrated as a fast packet, plying daily between St. Louis and Alton.

The *Nimrod* was built by Emerson, in 1844. Her tonnage is 260 tons, and her cost was $14,000. She has recently been purchased by a New Orleans firm, to run in the lower country trade.

The *Reveille*, a boat of 45 tons, was built in 1844—by whom and at what cost, not ascertained.

The *St. Croix*, 150 tons, was built by Murray, in 1844. Her cost was about $15,000.

The *Die Vernon* was built by Emerson, in 1844. She measures 212 tons, and cost $16,000.

The *Laclede*, a favorite packet boat, was built by Emerson, in 1845 She measures 240 tons, and cost $18,000.

The *Little Dove* was built by Emerson, in 1845. She measures about 75 tons—cost not known.

The *Dial* was built in 1845. Her tonnage is 160. Other particulars not known,

The *Iowa* was also built in 1845. Tonnage 250. Cost, &c., not ascertained.

The *Governor Briggs*, tonnage 120, was built by Clark, in 1845, and at the cost of $9,000

The *Helen* was built in 1845. Tonnage 60. Further particulars. not ascertained.

The *Prairie Bird*, tonnage 215, was built by Emerson in 1845. Cost $16,000.

The *Convoy* was built at Big Muddy, in 1845, and finished at this point in 1846. Her tonnage is 750 tons, and she measures on deck about 300 feet.

The *Missouri*, another leviathan, was finished at this port in 1845. Her tonnage is 886 tons, and her length on deck about 300 feet.

The *Tempest* was built by Emerson, in 1846. she measures 211 tons, and cost $17,000.

The *Ocean Wave* was also built by Emerson, in 1846. Measurement 200 tons, and cost $16,000.

The *Saluda* was built at one of the Ohio boat yards, in 1846, and brought here to be finished. She measures 233 tons.

The *Alvarado* was built by Emerson, in 1846, Tonnage 134 tons, and cost $12,000.

The *Bon Accord* was built by Brooks & Co., in 1846. Measures 150 tons, and cost about $14,000.

The *Amelia*, 150 tons, was built in 1846 by Emerson. Cost $12,000.

The *St. Joseph*, 220 tons, was built by Burns in 1845, at a cost of some $16,000.

The *Tamerlane*, 125 tons, was built by Miller, in 1846. Cost about $12,000

The *Laurel*, about 80 tons, was built in 1846. Particulars of cost, &c., not known.

The *Amaranth*, 330 tons, was built in 1846 by Emerson. Cost, $18,000

The *Hannibal*, tonnage, 464 tons, was built at Elizabeth, Pa., and finished here in 1844.

The *Old Missouri* was lengthened here at the cost of about $8,000.

The *Algoma*, 200 tons, was built in 1846 at Cincinnati, and finished here.

The *Mound City* was also finished at this port some four years ago.

Besides the above enumerated boats, some four or five ferry boats have been built at this point, and from 15 to 20 barges and keels, at an average cost of $8,000 each.

At this time, three fine boats are on the stocks, two at the yard of Mr. Emerson, and one at that of Brooks & Co. Capt. Geo, Taylor's boat, at Emerson's, will measure 600 tons, and carry one thousand. Her keel measures 250 feet, and deck about 300. She had 34 feet beam, and 7 feet hold. She receives the machinery of the *Brilliant*, now being torn up. Her probable cost will be $35,000. At the same yard is Capt. Beer's new boat. This measures 150 feet keel, and 165 on deck. Beam 27 feet, hold five feet. She will have two engines, and two 28 feet boilers, 40 inches in diameter. 18 inch cylenders with six feet stroke. She measures 213 tons, and will carry 3[illegible]0. Probable cost, $14,000.

At the yard of Brooks & Co., is the *Keokuk Paacket*. She measures about 300 tons, and will probably cost $19,000.

The following shows the number of Steamboats, by whom built, and the amount of tonnage to each boat, during the year 1847, which, taken in connection with the above, shows the entire number built, with the amount of tonnage, at St. Louis, from time the first boat was erected:

The *Mandan*, 204 tons, built by Primus Emerson.

The *Martha*, 180 tons, hull built at Cincinnati; engine and cabin built here.

The *Lake of the Woods*, 86 tons.

St. Paul, 358 tons, built by Brooks, Meagan & Holiday.

St. Petters, 163 tons, built by Brooks, Megan & Holaday.

Piazza, 86 tons.

Kate Kearney, 304 tons, built by Clark & King.

The *Montauk*, 175 tons.

Beardstown, 77 tons, built by Ely Sly.

Gov. Bent, 190 tons, built by Clark & King

The *Illinois*, 579 tons, built by Primus Emerson.

The *Autocrat*, 846 tons, do do

Eliza Stewart, 169 tons, do do

Lucy Bertram, 148 tons, built by Clark & King.

The *Kansas*, 276 tons, do do

The following shows the number of boats built at other points in the West, by citizens of St. Louis, for the St. Louis trade, for the year 1847:

The *Wyandot*, 314 tons; the *Dubuque*, 168 tons; the *Time and Tide*, 161 tons; the *Meteor*, 162 tons; the *Rowena*, 230 tons; the *Alexander Hamilton*, 212 tons; the *Alton*, 344 tons; the *Eudora*, 420 tons; the *Mary*, 276 tons.

NOTE—There are a number of Steamboats now on the stocks at the different yards, not yet finished.

ARTICLE IX.

Remarkable Events and Occurrences.

Under this head, at the end of each number of our Journal, we shall notice such events and occurrences, as may seem worthy of remembrance, and at the conclusion of each Volume, these will be placed in the Index. To those who take, and preserve, the "Western Journal," this will, in time, constitute a valuable register of the prominent events of the country.

Magnetic Telegraph.—Communication between St. Louis and the Eastern Cities.

We are pleased to be able, in the first number of our Journal, to announce the Telegraphic connection between St. Louis and the Eastern Cities.

The first communication, from Illinois Town, on the opposite side of the river, was made, on the 20th ultimo. Captain H. M. SHREEVE sent the first message.

Great flood in the Ohio river, about the 15th ultimo. the river at Cincinnati was reported to have risen about 60 fet above low water mark—lacking but a few feet of being as high as the great flood of 1832.

No. 1.

Lumber, Shingles, Lath, Wood, &c.----Amount of Lumber Sawed at St. Louis.

By reference to the following statistics, it will be seen, that the lumber and wood trade at St. Louis are becoming matters of much importance—branches of business that may well receive some attention.

The reports of the Lumber and Wood Master, for the last three years, show the following receipts at the wharf:

	1847.	1846.	1845.
Lumber, feet,	15,035,391	13,169,332	10,389,332
Shingles, M.,	11,983,700	10,652,900	13,927,500
Laths, "	2,475,300	1,307,780	2,328,700
Cooper Stuff,	1,262,652	966,963	441,770
Cords of Wood,	28,028	29,476	22,646
Rafts arriving,	95		
Posts,	7,000	6,997	5,263

From the best information we can get, the amount of Lumber sawed at the different Mills at St. Louis, is about 15,000,000 feet per annum, which added to that measured at the wharf, shows the amount of lumber, consumed per year, at St. Louis, to be over 30,000,000 of feet; this will give some idea of the growth of St. Louis.

No. 2.

Specie and Bullion in the United States.

The New York Journal of Commerce gives a table showing the amount of specie and bullion imported into the United States, (through the Custom House,) and exported from the United States, 1821 to 1846, inclusive; the sum total being as follows:

Imports, - - - - - - - -	$221,684,605
Exports, - - - - - - - -	$162,425,779
Balance, - - - - - - - -	$59,458,826

"The returns (says the Journal) for the year ending June 30, 1847, are not yet made up, but it is known that the imports of specie were very heavy, and the exports very light. There must have been a considerable exportation of coin from New Orleans for the use of our army in Mexico. From the returns at New York, Boston and New Orleans, and other datas, we should judge that from the 30th June, 1846, to the 1st of the present month, the imports of specie into the United States, through the Custom House, were at least twenty millions over and above the exports. Since the first inst., and for a short time previous, the current has been running the other way, though not very strongly.

AMOUNT OF SPECIE IN THE COUNTRY.

It has been estimated that the amount of specie in the country on the

30th September, 1820, was - - - - -	$20,000,900
Imported since, to June 30, '46, as above. - -	241,634,578
	$241,634,578
Deduct exported to same date, as above - - -	162,425,779
Leaving on hand 30th of June, 1846 - - -	$79,258,799
Estimated net addition from 30th June, 1846, to 1st instant	20,000,000
Leaving on hand 1st instant - - -	$99,558,799

Or say in round numbers, $100,000 000. That the amount exceeds this, rather than falls below it, we fully believe. For if large numbers are constantly melted up for plate and jewelry, so on the other hand a

vast aggregate is imported by emigrants, which does not pass through the Custom House, and of course is not included in the returns. The amount so imported is believed to exceed $5,000,000 per annum on an average of the last ten years; and this year, owing to the vast imcrease of emigration, and the further fact that a larger portion of the emigrants than usual possess some property, we estimate the amount of specie which they bring at $10,000,00. This would be about $40 each, on an average.

The amount of specie in the country on the 30th of September, 1841, according to a calculation made by the then Register of the Treasury, was $63,593,898. The increase since is $40,000,000 or upwards.

The following shows the amount of Gold and Silver Coinage of the United States Mints:

	Charlotte, N. C.	Dahlonega, Ga.	N. Orleans.	Philadelphia.	Total.
1793 to 1837	- - -	- - -	- - -	72,085,530	72,085,530
1838 " 1841	507,025	517,990	1,850 693	10,429,664	72,085,530
1842 - - - -	184,508	309,647	1,295,750	2,426,351	4,190,764
1843 - - - -	272,064	670,000	4,568,000	6,530,043	11,940,187
1844 - - - -	146,210	488,600	4,208,500	2,843,457	7,687,767
1845 - - - -	- - - -	501,795	1,750,000	3,416,800	5,667,595
1846 - - - -	76,665	449,727	2,483,800	3,623,443	6,633,965
Total, - -	1,177,772	2,057,839	16,165,743	101,355,288	120,931,170

No. 3.

The Manufacture of Flour at St. Louis.

The following table will show what St. Louis is doing in the business of Flour Manufacturing.

We have made up our table from the facts obtained from the several establishments. The amonnt was not, perhaps, in any case, given with perfect accuracy, but were nevertheless designed to approximate as near to the truth as practicable without a minute investigation into the Books of the several concerns.

The commendable enterprise, and good judgement of the St. Louis Millers have established a reputation for the flour manufactured here which gives it an advantage of from 10 to 15 per cent. over the brands of any other part of the Mississippi Valley.

The number of Mills and the enterprise of their owners not only create competition, but are calculated to give a steadiness to the wheat market, which could not exist were the producers entirely dependent upon those who are purchasers for foreign markets.

If there existed competition here from the like cause for all our great staples it would place the prosperity of the West upon a more permanent basis, and thus protect the producers from the revulsions which frequently occur in prices.

A Table showing the number of Mills—Number and size of Stones, and quantity of Flour produced in St. Louis, in the year 1847.

Name of Mill.	*No. of Run of Stone.*	*Size of Stone.*	*No. of bls. of Flour.*
Page's Mill, -	8	Av'ge 4 1-2 ft.	70,000
Missouri Mill, -	3	" 4 1-2 "	30,000
Star Mill, -	3	" 5 "	26,000
Union Mill, -	3	" 5 "	24,000
Eagle Mill, -	2	" 4 ft 9 in.	24,000
Park Mill, -	2	" 4 " 6 "	24,000
Brick Mill, -	2	" 4 " 6 "	20,000
Washington Mill,	2	" 4 "	24,000
Franklin Mill,	4	" 3 "	16,000
Phœnix Mill, -	4	" 4 "	30,000
Nonantum Mill, -	2	" 4 " 6 "	30,000
Centre Mill,			16,000
Chouteau's Mill, -	3	" 5 "	11,000
Paragon Mill, -			6,000
Mound Mill, -			14,000
Total number of barrels of Flour,		- -	365,000

There are now being built two other mills in the city calculated for two run of stone each.

We give the above facts as we get them from either the owners or agents on the premises, and doubt not that the information approximates sufficiently near to the truth for all the purposes designed by our table.

No. 4.

Number of Steamboat arrivals each month at St. Louis,—Amount of Tonnage,—Also, the number of Keels and Flats.

In order to give some idea, of the number of Steamboat arrivals and amount of tonnage, at different seasons of the year at the port of St. Louis, we give the following table, showing the number of arrivals each month, which will enable our readers to form an opinion as to what period of the year the heaviest portion of the commerce of St. Louis is carried on.

ARRIVED, 1846.				ARRIVED, 1847.			
	No. of S. Boats.	Tonnage.	Keels & Flats		No. of S. Boats.	Tonnage.	Keels & Flats.
January,	50	8.917	6	January,	64	12.3ff2	27
February,	152	26.111	35	February,	67	19.550	24
March.	158	31.850	22	March,	231	48.804	81
April,	158	49.334	44	April, Msy,	119	181.536	192
May,	162	78.124	68	June,	245	56.537	30
June,	195	64.043	38	July,	351	75.085	26
July,	193	46.554	68	August,	238	42.408	74
August,	211	37.553	75	September,	242	41.229	20
September,	171	28.331	72	October,	341	56.038	35
October,	237	37.558	162	November,	297	46.731	60
November,	185	31.346	171	December,			
December.	190	32.393	120				
	2412	577.824	881		2995	558.186	558

*The month of December of course is not included in 1847.

No. 5.

To Prevent Wood Decaying.

Take 12 ounces of rosin, and eight ounces of brimstone, each coarsely powdered, and three gallons of train oil.—Heat them slowly, gradually adding four ounces of Bees-wax, cut in small bits. Frequently stir the liquor, which as soon as the solid ingredients are dissolved, will be fit for use. What remains unused will become hard on cooling, and may be remelted on subsequent occasions. When it is fit for use, add as much Spanish brown, or red or yellow

ochre, or any color you want, first ground fine in some of the oil, as will give the shade you want; then lay it on as hot and thick as you can with a brush; some days after the first coat is dried, give it a second. It will preserve plank for ages, and keep the weather from driving through brick work. Common white paint may be used on top of it, if required, for the sake of appearance. Two coats should always be given, and in compound machinery the separate parts should be varnished before they are put together, after which it will be prudent to give a third coating to the joints or to any other part which is peculiarly exposed to moisture, such as water- shoots, flood-gates, the beds of carts, the tops of posts, and all the timber which is near or within the ground. Each coat should be dry before the parts are joined, or the last coat applied. The composition should be applied when the wood is perfectly dry. It is necessary that compositions made of hot oil, should for the sake of security, be heated in metalic vessels, in the open air; for when the oil is brought to a boiling point, or Farenheit, the vapor catches fire, and though a lower temperature should be used in this process, it is not always possible to regulate the heat or to prevent the overflowing of the materials, in either of which cases, were the melting performed in a house, fatal accidents might happen.—*Archives of Useful Knowledge.*

No. 6.

Agricultural Chemistry.

Agricultural Chemistry teaches us that there are essential ingredients in soils, which it is of the highest importance we should understand. It is incontrovertible that the salts existing in soils constitute but a very small portion of the whole mass of the soil—that they are not to be deemed accidental, but entirely indispensable to plants, which according to their respective nature admit one or another into their circulation, and perishing for want of the appropriate salt. By salts we must understand all those substances which consist of a base united with an acid. The principal bases are Potassa, Soda,

Lime, and Magnesia, which enter into the composition of all fertile soils. The acids with which these ordinarily combine are the Carbonic, the Sulphuric and Phosphoric. By burning plants, their combinations appear in ashes. An examination of the properties of their principal salts and their components, sheds a great light upon the subject. Let us begin with the bases. These are discovered to be metalic oxydes, the pure metals of which were obtained by Sir Humphrey Davy, and they are denominated respectively potassium, sodium, calcium, and magnesium and bone barytes, barium, &c. But potassium, which is the one most easily obtained, may be taken as a type of the class. It is a glittering metal, much like silver, but clear as water. It has some quality in common with sodium. When a current of water is passed over it, it is decomposed with great rapidity, devolving its oxygen. It often changes red color to blue. It combines with other acids, forming neutral salts, which are obtained by evaporation. The other alkaline metals follow the same process, but not so readily as potassium. The proportions in which they combine are 50 parts potassium, 8 of oxygen; making 48 of potassa, 24 parts of sodium, with 8 of oxygen, making 32 of soda.

Knowing the great importance of this to a farmer to know what amount his soil contains of potash, or of soda, we present them distinctly. Take a portion of the soil, and put it into boiling water, and then strain it through a filter. The water will extract all the soluble portions; then dry by evaporation, and the salt remaining will show by its form, its solubility, and by the action of the air upon it when exposed, what base it contains. That base will generally be found combined with sulphuric acid. When sulphate of potash is present, it will be discovered by its slow solution and its permanency when exposed to the air. Some plants receive from the soil minute portions of alkali, while others absorb an immense quantity. Some plants, Montena for example, contain a considerable quantity of sulphurs, which, combining with oxygen, developes the offensive gas sulphurated hydrogen, as is often found in fire-arms when neglected; and with putrid eggs. To this is owing the nauseous smell of water in

which vegetables may have been cooked. So with the water near the mouths of rivers, especially on the coast of Africa. The copper of ships anchored there rapidly decays, and this is the attributed cause of the unhealthiness of those shores. The best test of its presence is sugar of lead in solution, which in a short time shows itself producing sulphuret of lead. Sulphurretted hydrogen is then unquestionably pernicious to animal life, but not to vegetables, for to some of them sulphur is necessary; it is essential in mustard, cabbages, and in a large class of plants.—*Scientific American.*

No. 7.

Valuable Discovery.

Messrs. Quarterman & Son, of No. 18 Burling Slip, this city, have made a valuable discovery in the mode of mixing paints, for which they have applied for letters patent. All artists' colors can be prepared in the composition, will keep moist for years and will mix either in turpentine, oil, or water. All paints prepared in this manner preserve their brilliancy much longer and are more durable than those prepared in the old way. This new mode is also applicable to paints used in house and ship painting. It is also so cheap and so simple in its application, that any painter or manufacturer can adopt it readily.—*Ib.*

No. 8.

New Threshing and Cleaning Machine.

Mr. N. B. Lucas, of Jefferson county, Illinois, has invented a new Threshing and Winnowing Machine, which can thresh and clean with ease 600 bushels of oats in a day, and about 500 of wheat. It threshes damp grain well separating the damp grain from the straw easily. The inventor says that there is no machinery that winds with damp straw; no elevators to choke; no hand required to pitch straw from the machine, as the machinery throws it in a pile, to be taken with a horse rake, and thereby saves the labor of a man.—*Ib.*

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1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal Improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.

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ST. LOUIS, MO.

TO THE PUBLIC PRESS.

We beg leave to express our sentiments of gratitude for the kind and complimentary terms in which the Editors of the public journals, both of the city and country, have noticed the first number of the Western Journal. It is cheering to him who is about to enter upon an arduous and important enterprise, to hear the hearty "God speed" in the voice of friends; and yet more cheering when repeated by strangers, for this gives assurance that there are those who are friendly to the cause, as well as to the individual.

Indulging a hope that we may be of mutual benefit to each other, we tender our respects to the Editors of the West, and shall be pleased to exchange with all those who feel an interest in the success of our work.

TO THE READERS OF THE WESTERN JOURNAL.

We have taken the liberty of sending the Western Journal to many individuals who are not subscribers; these are not to suppose that they are under any obligation to take the work: those, however, who may esteem it worthy of patronage, will please to let us hear from them before the publication of the next number.

TO AGENTS.

Such individuals as have been requested to act as agents, will please to let us hear from them at an early day.

CLUBS

Will be furnished with six copies of the Western Journal for fifteen dollars, for the term of one year.

Communications are invited upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.

Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

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3. Political and Moral Economy.
4. Improvement of the Western Waters by the Federal Government.
5. Literature of the West.
6. On the natural advantages for manufacturing on the Ohio River.

THE

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M. TARVER & T. F. RISK, EDITORS & PROPRIETORS.

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THE

WESTERN JOURNAL.

Volume I.] FEBRUARY, 1848. [Number 2.

ART. I.—POLITICAL ECONOMY.

INTRODUCTION TO THE SUBJECT. — DISTRIBUTION AND DIRECTION OF LABOR. — THE IMPORTANCE OF THE EMPLOYMENT OF EVERY INDIVIDUAL. — DIRECTION OF LABOR. — THE IMPORTANCE OF LOCATING THE PRODUCER AND CONSUMER NEAR TO EACH OTHER.

IN discussing the leading subjects designed to be embraced in the WESTERN JOURNAL, we shall endeavor so to arrange them as to keep their relations to each other in constant view. By adopting this method, we shall be the better able to point out the connection of one interest with another, and to show the mutual dependence of each. Notwithstanding the practical application of these subjects is designed for the Valley of the Mississippi, (and, in that respect, local,) yet we shall aim to draw deductions from truths that are universal in their nature, and which are, therefore, interesting to the people of every country.

Writers on political economy regard the wealth of countries, with but little reference to the moral nature of man, or to the social condition of the people. They appreciate labor as the agent of civilization, and as the means of producing the appliances of human comfort; but propose no moral reward to the laborer; they offer no reasons calculated to reconcile him to his condition; and leave him to toil under the influence of necessity, or from a desire to accumulate wealth, unchastened by moral refinement

In the course of our discussions, we shall endeavor to show that there are other and higher rewards associated with labor; and that it was ordained by the Creator not only for the purpose of feeding and clothing the body, but also to elevate and dignify the moral nature of man. These discussions will lead us to consider the importance of associating mental and moral improvement with useful employments; to the end that man may become reconciled to labor in obedience to the laws of his being.

These moral considerations will either be interwoven with the principal subjects or embodied in separate articles at the conclusion of each number, as may appear most appropriate and convenient.

Although we esteem this branch of our subject as properly belonging to political economy, yet as it has not, hitherto, been treated in connection with that science, we shall call it "moral economy;" and, by that title, shall refer to it as occasion may require.

The field of investigation upon which we are about to enter, is not only extensive, but, in many respects, new; and although fertile, yet will require much labor, to make it fruitful. These considerations, however, will not discourage us, if we shall be so fortunate as to receive the approbation of our readers.

DISTRIBUTION OF LABOR.

The primary wants of man in a state of nature, are food, and protection from the inclemencies of the seasons. These are merely physical: civilization adds others equally essential; and, among the first of these, we must place mental and moral improvement. Hence the propriety of uniting moral with political economy; for, although food and shelter may sustain man in a state of nature, civilization can only be sustained by mental and moral culture.

The spontaneous productions of nature are only sufficient to support a small number of human beings in a state of barbarism: all beyond this limit is the result of labor and knowledge combined; and without this combination the earth must have remained a wilderness, and the human family a horde of savages.

The inhabitants of the earth having increased far beyond its capacity to sustain them without labor, and, for the reason that labor cannot be profitably directed without knowledge, it will be readily perceived that not only the comfort but the existence, also, of a large portion of the human family depend upon a wise direction of their employment.

Man is so constituted, that a certain degree of exercise is necessary to insure a healthful condition of his physical nature; and, without this, all physical enjoyments lose their relish and fail to delight his senses. This exercise was doubtless designed by the Creator to be appropriated to the production of the means of human comfort, and to redeem man from a state of barbarism. Hence we conclude, that, if every individual were to appropriate that exercise which is necessary to sustain health, to some useful purpose, that this would be sufficient to produce the appliances of every reasonable comfort, and leave ample time for mental improvement, and social intercourse.

Were it not so, little, or perhaps, no advancement could be made in civilization, except by such as should avail themselves of the labor of others; therefore, if all should not be employed according to their capacity, and a considerable portion should subsist upon the labor of other hands than their own, the burthen would become unequal; and those upon whom it should bear the heaviest, must faint by the way, and fall behind in the march of civilization.

An equal distribution of labor among the inhabitants of a country, and a judicious direction of this labor to proper objects, constitute the true basis of political economy: and the permanent prosperity of every country, must mainly depend upon the observance of this proposition.

In considering the condition of the inhabitants of a country, we must constantly bear in mind that there are certain wants, which are common to every individual. Among these, are food and clothing, shelter from the inclemencies of the seasons, exercise and rest, intellectual improvement and moral instruction; and if these wants are not supplied, physical suffering, and moral degradation, are the necessary consequences. Every departure from an equal distribution of labor, tends to deprive a portion of the community of the means of supplying some one or more of these wants.

To illustrate the effects of an unequal distribution of labor, we will suppose, that a community of ten individuals should have so ordered their time, as to labor seven hours out of twenty-four; and, finding this sufficient to produce every reasonable comfort, they should appropriate the other seventeen hours to mental improvement, social intercourse, rest, and refreshment. Now, if one of the number should, from any cause, cease to labor, and subsist by the labor of the other nine, they would be compelled to forego a portion of their former comforts, or add forty-six minutes *per diem* to their time of employment. If two of this community should cease to labor, and subsist in like manner upon the labor of the other eight, *these* must increase their time to eight hours and forty-five minutes. And if three should cease to labor, and still draw their subsistence from the labor of the remaining seven, the latter would be required to labor just ten hours *per diem;* or, otherwise, suffer great diminution in their former comforts. This withdrawal of three out of ten would leave the remaining seven but little time to devote to mental improvement or to social intercourse; and, moreover, the time for improvement would not only be lessened, but the faculties of the mind would be impaired also; for when physical exercise is carried beyond a certain point, it ceases to afford pleasure, and produces a state of suffering, arising from exhaustion; and the mind, sympathizing with the body, loses its elasticity and yields to the physical demand for repose.

Hence we perceive how important it is to the advancement of civilization, that every individual should be usefully employed; for it is utterly impracticable that any considerable portion of a community can subsist upon the labor of the other without producing a state of want and moral degradation; and it may be well questioned, whether the moral condition of any country can improve, where as many as three individuals out of every ten, who are capable, should, from any cause, fail to be engaged in some useful employment. It is not sufficient that those who are not usefully employed should pay in money for all that they consume; this would not alter the case in the end — it would not lessen the amount of productive labor required to support the community; for, money being the

representative of labor, which was performed, perhaps, a thousand years ago, in digging the metal from the mines, can, in no way, lessen the amount of labor at present required to support the human family.

DIRECTION OF LABOR.

It is not only important that labor should be equally distributed, but it is like a important, to the prosperity of every country, that it should be wisely directed; for it may happen that although every individual should contribute their just proportion of labor, yet, because of its unwise application, the community may not prosper. The worn out and exhausted condition of the old States of the Union, south of the Potomac, afford undeniable and convincing proof in support of this proposition; and, as far as we are acquainted with history, the same causes have produced like effects in every country which has pursued the policy of transporting their agricultural products in a raw condition, and have relied upon foreign countries for a considerable portion of their necessary comforts.

The effects of this policy are the same as those produced by the voluntary withdrawal of a portion of the community from useful employment. The intrinsic value of a commodity is in no way increased by transportation, but often diminished. A barrel of flour affords no more nutriment at Manchester, England, than in Missouri, where it is produced; nor will a yard of cloth manufactured at Manchester, make a larger or more comfortable garment in Missouri, than it would at the place of its production. Therefore, the labor and cost incident to the transportation of these articles, is so much withdrawn from the ranks of the producers, and necessarily tends to increase the burthen of labor.

We do not wish to be understood as proposing to dispense with the transportation and exchange of commodities; on the contrary, we hold that these exchanges are necessary to the advancement of civilization, and to the general distribution of human comfort. Our principal design is to show the importance of locating the producers and consumers, of every commodity, as near to each other as the nature of the case will admit. This we esteem the true policy of the people of every country; and upon its adoption, or rejection, will depend their ultimate prosperity.

The first, and perhaps the most important, consideration connected with this policy, is the preservation and proper application of the natural wealth of the country. This consists, mainly, of the *soils, minerals, forests,* and *water courses;* and if these should be improvidently destroyed, or suffered to lie unimproved, no artificial means can secure permanent prosperity.

The soil being the most important object of natural wealth, its preservation and improvement should ever be kept in view, and regarded as the leading principle in the policy of every country. But it is scarcely possible to preserve the soil — much less to improve it — in a country that exports its products in the form of raw material; for every article exported carries with it a portion of the productive properties of the soil, which never return; and to that extent lessens the

natural wealth of the country. Besides this, none other than the principal staples can be profitably exported; and as these are generally great exhausters of the soil, a rotation of crops becomes necessary; and if not adopted, the land must lie idle to rest. From this cause, much of the land in staple-growing districts is thrown out of cultivation, and finally abandoned as worthless; for where there is no demand for the alternating crop, the cultivation of the staple is usually continued until the crop will no longer pay for the labor bestowed upon it. But if the manufacturer and artist were located near the agriculturalist, then there would be not only a better demand for the staples, but for the more bulky and perishable articles also. Root crops, grass, the produce of the orchard and garden, with many other articles, which are now of little or no value, would find a ready and profitable market; and thus the whole area of arable land would be cultivated, and made to produce a valuable crop every year. By thus increasing the variety of products, much employment would be found suitable for children and other weak hands, that are of little or no use in the production of the great staples.

The forest, also, which, in many parts of the country, is considered a disadvantage, rather than a benefit, would become a great source of wealth. The water power would likewise be appropriated to useful purposes; and even the rocks, which are now considered worse than useless, would, in many places, if not every where, in time, become sources of wealth. But what shall we say of the extensive coal fields of the Mississippi Valley? In these there slumbers a physical power surpassing the combined strength of the whole human race; nor is the political and moral power which these are calculated to impart, less important. But all these are of but little utility to a country which is merely agricultural; and more especially to those staple-growing districts which rely upon foreign consumers for a market, and upon foreign producers for clothing and other articles of comfort and convenience.

This reliance upon foreign consumers for a demand, may be considered among the great evils of the present age; especially in the Valley of the Mississippi. In producing for foreign markets, we come in competition with the producers of every other part of the earth. Let us examine the true nature of this competition. Two bushels of wheat is produced in Missouri and transported to Liverpool. When it arrives there, the grower, supposing him still to be the owner, gives one bushel to pay for the transportation of the other. Thus giving away one half of the produce of his own labor for the privilege of competing with the wheat grower in England. Now if we assume that it requires the same amount of labor to produce a bushel of wheat in each country, and that the English farmer gives one half of his crop to the land owner, as rent, still he would be in a better condition than the Missouri farmer, who had given one half of his wheat to pay the transportation and other incidental charges: for rent, or the interest on the capital invested in land, must be paid in Missouri, in addition to the cost of transportation. Labor is also cheaper in England than here; which is also an

advantage in favor of the English farmer. Hence it will be perceived, that notwithstanding the cheapness and fertility of soil, combined with all the advantages of a cheap and free government, yet, owing to an absurd and defective system of political economy, labor in Missouri is no better rewarded than in England, where it is burthened with the support of a landed aristocracy and the most expensive government upon earth.

But we not only come in competition with the English farmer, but with all Europe; and especially with the northern part, where farm labor costs less than half the price paid for it in Missouri; and the cost of transportation thence to England is much less than from this country. We do not forget (for we desire to treat the subject fairly,) that, so far as the products of the Missouri farmer are consumed at home, he possesses an advantage over the foreign producer; but we consider this advantage more than counterbalanced by the increased price which he pays for clothing and articles of foreign manufacture. But there are other evils, arising from this reliance upon foreign markets, besides the loss of labor.

The foreign demand depends upon so many contingencies that it is impossible for the farmer in Missouri to form any reliable opinion in regard to the markets; and being often disappointed, he becomes discouraged, and produces less than he would if a reasonable calculation could be made in regard to the demand and the price of his produce. This uncertainty also has a tendency to encourage speculation and over-trading in both merchandize and produce, and gives rise to a spirit of restlessness and discontent throughout the land. Furthermore, it subjects us to the influence of the pecuniary revulsions which take place in foreign countries, which adds greatly to the contingencies and accidents incident to every branch of industry. These are evils which no foresight can guard against, and to which we must always be subject, so long as our present policy continues.

Nor is the commerce between the Mississippi Valley and the eastern States, in some respects, upon a footing more favorable to the west than that with Great Britain. Twenty cents per bushel may be assumed as the average price of corn in Missouri; and if a farmer here should desire to exchange corn for cotton cloth worth ten cents per yard, he would get two yards for one bushel of corn: while the farmer in Massachusetts would get seven yards of cloth, of the same quality, for the same quantity of corn—valuing the cloth at nine cents per yard, and the corn at sixty-three cents per bushel, which would be about the average price there of the two articles. And thus the farmer in Missouri gets only two-sevenths as much of every article of eastern manufacture, which he pays for in corn, as does the corn grower in Massachusetts. Indeed, if the articles should be heavy and bulky, the freight upon them would increase this ratio of cost to the Missouri farmer. It is, beyond question, owing to the proximity of the producers of corn and cotton cloth, that secures this advantage to the eastern farmer; for five bushels out of the seven of the Missouri corn goes to pay the carriers, commission merchants, and others, engaged in effecting the exchange. If the farmer desired to

exchange wheat for eastern manufactures, he would get, on an average, about half the quantity that the farmer in Massachusetts would get; while in the exchange of flour he would only lose about from twenty-five to thirty per cent. And here we have a striking illustration of the effects of manufacturing; for the simple process of manufacturing the wheat into flour, reduces the loss in the exchange of this article to about one half; and although this may not be a direct gain to the farmer, it is so much saved to the country, and inures to the general benefit and prosperity of all classes. Beef and pork, upon foot, may also be set down at about double the price in Massachusetts as in Missouri. But the difference is much less when packed in barrels; this is owing to the cost of packing, including the salt and the barrel.

It may be assumed, as a fair proposition, that one half of the value of all the exports from Missouri is paid for transporting them to market, and in the difference of price between the cost here of the manufactured articles which we consume, and their cost at the place of production. But this is only a part of the loss; for we have endeavored to show that the exportation of the raw material is not only destructive to the land, but that if the consumers were nearer to the producers, the latter would find a profitable market for many articles which might be raised at little cost, without lessening the amount of the larger staples.

We have endeavored to analyze the subject and to state it fairly; and we respectfully invite our agricultural readers to examine the matter for themselves; and we think that they will conclude with us, that there is, perhaps, no other country, where every individual is free to choose his employment, in which labor is so unwisely or unprofitably directed as in the western portion of the Mississippi Valley.

ART. II.—MORAL ECONOMY.

Having noticed the necessity of exercise, as the means of insuring a healthful condition of man's physical nature—and also the importance of its application to useful purposes—we now propose to consider labor as a moral institution.

The Creator, in his benevolence, has associated pleasure with the performance of every office necessary either to the support and comfort of our individual existence or to the perpetuation of the race. Alternate exercise and rest—the grateful flavor of food—sexual love—and parental affection—were ordained as incentives to human action; and may be regarded as rewards of obedience to the laws of our physical nature. So, likewise, every act of obedience to the Divine will, and every social action which imparts benefits to others, give rise to emotions of pleasure; and these being assimilated with our moral nature, remain a permanent source of gratification. And he who neglects to enrich his heart with

the comforts which flow from a sense of obedience to the laws of his being, or with the pleasurable emotions which arise from social actions, must not only remain a stranger to moral happiness, but also suffer the penalties annexed to disobedience.

We have endeavored to show, that by the economy of man's nature, his existence in a civilized state can only be sustained by labor and knowledge combined; therefore, had labor been attended with no other reward than the gratification of the senses, the condition of man would have been infinitely worse than that of any other created being. But the Divine Word, which declared that "In the sweat of thy face shalt thou eat bread," redeemed man from this hard condition. This added *a moral duty* to the *physical necessity;* and although the burthen was not increased, man thereby became the recipient of the rewards attendant upon labor as a moral institution. How benevolent and sublimely beautiful appear the designs of the Creator, when thus considered! Yet man, not perceiving the moral obligation, nor appreciating the rewards of obedience, looks alone to the physical necessity, and esteems labor a curse imposed upon his race. And until this fatal delusion shall be removed, he must continue to labor under the law of physical necessity, or from a morbid desire to accumulate wealth; and civilization, as ever heretofore, will be doomed to rise and fall like the waves of a troubled ocean.

Owing to the blindness and ignorance of man, in regard to the means of promoting his own happiness, he is prone to look upon labor as a condition degrading to his nature; and endeavors to escape from it by any method which his imagination can devise. As well might we expect that a galley slave would be scrupulous in regard to the manner of escaping from the toils of the oar, as to expect that one who perceives no moral reward associated with labor, should be quite conscientious in selecting the mode of escape from a condition which he esteems not less hard and degrading. Void of gratitude to his Maker, and feeling no sympathy for his fellow-man, he submits to the dominion of self love; and disregarding all social observances and moral obligations, he goes forth prepared for deeds of desperation, and resolves to imitate the rich and privileged orders in appropriating the labors of others to his own use. Hence the knave, clothed in falsehood and deception, like the fabled Proteus, assumes every form and guise. Is he a dealer in small wares, he pratices upon the ignorant and the credulous with false representations of value, with false weights and measures, and ingeniously conceals the defects of his commodities. A merchant, he is a speculator, cunning in the art of raising and depressing the markets by concealment and false intelligence. A mechanic, he is unfaithful and unjust to his employer, and working up to the letter of his contract: to secure the enforcement of his demand, he disregards the moral part of the obligation, and rejoices in the fraud. A physician, he is ignorant of the science, and of all the virtues which adorn the profession; and, eager for his fee, he boldly exhibits his nostrums, reckless of their

effects. He studies the art of insinuation more than medicine, and imposes upon the ignorant and the unwary, by the use of hard names and the abuse of all systems but his own. A lawyer, unmindful that he is the agent of justice, he is a trickster in practice; and, regardless of the interest of his client, experiments upon his rights by encouraging litigation; suborns, or is privy to the subornation of perjury, and aids in defrauding the ignorant of their rights: bringing reproach upon the administration of the laws of the country, and upon the profession to which he belongs. A minister of religion, he is regardless of aught save his own interest: he seeks an alliance with wealth, intrigues for the best living; and having succeeded in his schemes, throws off the mask which covered his knavery, and laughs at the gullibility of the world. A politician, ignorant of every principle which constitutes and adorns a statesman, he is a demagogue, following the lead of the party in power, regardless of all other consequences than his own political advancement; and pandering to the prejudices and passions of his constituents, he manages to divert their attention from the consideration of his baseness; and by his vile practices, deprives the country of the services of more honorable and capable men.

Actuated by the same cause, the more degraded seek to procure by theft the means of existence, which might be acquired with less risk and more certainty by honest industry. While the more daring spirits, armed with instruments of death, go forth to rob the unprotected traveler or the unguarded mansion. Hence, too, the strolling mendicant, the mountebank, and the army of vagabonds, all seeking to reap where they have not sown.

This prejudice against labor, and the evils which flow from it, are not confined to those whose condition requires them to be engaged in useful employment, but extends to all classes. The apprehension that, from some unforeseen accident, they may be compelled to labor — and a strong desire to rescue their offspring from a condition esteemed so hard and degrading — lessen the enjoyments of the rich, and make them timid in the application of a reasonable portion of their wealth to social purposes. And more than all, this prejudice against labor mingles with nature's pure fountain; and those holy affections, which were designed to resolve two hearts into one, are poisoned and polluted with gold. It is true, that in this country, few, or perhaps none, will admit that labor is a degradation, or that it detracts from the respectability of an individual; nevertheless, we can not be blind to the fact, that the prejudice against labor is still strong and deeply rooted in the general mind; and that a desire for the possession of wealth, rather than a sense of moral duty, constitutes the principal incentive to labor — except in the case of such as are compelled from necessity.

Labor induced by a mere desire for wealth, or by necessity, may develop the resources and increase the wealth of a country, but can not secure the permanent advancement of civilization and of moral improvement. The people of this country require little to stimulate them to labor; and there is, perhaps, no other coun-

try in which labor is so generally and equally distributed. But we desire that all men should labor from a sense of duty: this would equalize and lighten the physical burthen of labor — while a consciousness of obedience to the will of the Creator would be a continual source of moral pleasure. Then, man would no longer desire to escape from this condition of his nature; and the motives to subsist upon the labor of others would cease, and justice prevail throughout the earth: and the causes of social enmity ceasing, sympathy and social love would every where abound; and the precept, which requires that man should do unto others as he would that they should do unto him — and that other, which teaches him to love his neighbor as himself — would no longer be considered as opposed to his individual interest.

ART. III.—THE OBLIGATION OF CONTRACTS,

OR AN INQUIRY INTO THE NATURE AND DEGREE OF EQUALITY REQUIRED IN CONTRACTS OF MUTUAL INTEREST.

The subject of our inquiry enters so extensively into the pursuits and business of active life, that to many it may seem an idle undertaking to pursue an investigation of the kind. But to the reflecting mind — to every one who is willing to look into the reason of things — the subject is one of deep interest. In the mere theory of contracts there is sufficient to lead us to the investigation we propose; and if we have carefully observed the business of life, with its toils and strifes, we have seen enough to show us its practical importance.

If we look to our system of jurisprudence, and note its incongruities in respect to contracts, we shall be led, irresistibly, to the inquiry, Why such a state of things has so long existed? How it has happened that this matter has remained stationary for so long a time, while, during the same period, there has been steady and rapid progress in the arts and sciences, civilization, and the rules of government?

How frequently has it occurred, in the experience of almost every one, and to his great surprise, that what he had relied on as a valid obligation, is declared, from extraneous circumstances, to be of no binding force whatever. Such a result impresses itself upon the mind as a glaring incongruity in our system of laws. That incongruities exist, it would be hardihood to deny; but they are more a matter of regret than surprise. The reason of their existence is to be found in the history of our system of jurisprudence. Ours was the slow growth of many ages and several centuries. In each successive modification which it underwent in the progress of civil freedom — in the admixture of foreign learning and law — in its necessary adaptation to the ever augmenting wants of an extensive, bold and liberal spirited commerce — as new relations and new usages arose — new

views of equity or policy were opened, or old rules were adapted to purposes for which they were never intended, by judges who partook of the altered spirit of the times.

It would lead to an unprofitable digression to pursue the causes and history of the incongruities of the law. Let us return to the consideration of what may be regarded as settled doctrine, so far as external rules are concerned, in the matter of contracts

A *contract* is defined, by law writers, to be an agreement or mutual bargain between two or more contracting parties.

It is not necessary, for the investigation we have in view, to state the different kinds or sorts of contracts recognized in law. It is next said that it is essential to a valid agreement that it must be founded upon a *good consideration*. That which is the motive of the contract is regarded as the consideration, and this is essential to its validity. The *civilians* hold that, in all contracts, there must be something given in exchange — something that is mutual or reciprocal. And lawyers and divines, time out of mind, have said that "all bargains are made under the idea of giving and receiving equivalents in value."

In the mere exchange of commodities — the mere giving and receiving things which have a fixed value, or are of such a nature or kind that their value at the time of exchange can be ascertained with reasonable certainty — there need be no apprehension that an unfair advantage will or can be taken. But the point to which the reader's attention is directed, is to the important and difficult question as to the *nature and degree of equality in compensation, or in knowledge*, required between the parties to a contract, in order to make it binding in law and just and right in morals

If A. has a knowledge of some fact, which is unknown to B., but which materially affects the estimate or value of property of which B. is the owner, may not A. take advantage of his knowledge of such fact and buy the property of B., without communicating such fact to B.; and may not this be done without violating any rule or principle of law or morals?

Here is a practical statement of the question. In a case like this, ingenious minds, unhacknied in the ways of men and unaccustomed to argue away their first warm impressions, would not long hesitate in pronouncing such an advantage, if not a palpable fraud, at least an ungenerous trick. It is not unlikely that most men would pronounce such an advantage a bold fraud, and would look upon a system of laws which would uphold it, as unjust and disgraceful.

No better proof of the universal agreement of the decisions of untutored moral feeling in such cases, need be required, than is furnished by the indignation which is so frequently excited when an unlettered man — or one of feeble intellect — is over-reached by his crafty and unprincipled neighbor. An opinion apparently so natural, seldom springs from caprice or accidental prejudice. It must be regarded as the spontaneous result of the moral observation and experience of our whole

lives. It may be difficult to analyze it into its elements, still it is irresistible in its conviction.

This moral feeling, in a case like the one suggested, points at once to the motive or consideration for which B. parted with his property; to the idea or theory of giving and receiving equivalents. And it is argued that if the *vendor*, from the fact of being better informed, by extraneous circumstances, as to the true value of the thing sold, than the purchaser — or from any other cause, should knowingly obtain more for it than it is worth — or if, for want of equality of knowledge or accident, the buyer should get it for too little — in either case, one party has not received the equivalent which was the motive or consideration of the contract. As a matter of course, if this argument is sound — if it is sustained by reason and the dictates of morality — a contract made under circumstances of superior advantage to one or the other of the contracting parties, should be rescinded for want of equality

Now the question naturally occurs, whether it is possible, in the nature of things, to preserve exact equality in knowledge or value in the making of contracts?

It certainly would be a bold proposition to affirm that an individual cannot make an advantageous bargain without incurring the reproach of dishonesty. It would shock common sense to affirm that our code of morals prohibits an individual from exercising his sagacity and foresight in the making of agreements with his neighbor. While it is true that "*knowledge is power*," the experience of life teaches us that knowledge is the most useful capital employed in any business.

By common consent, the skilful and industrious are allowed the full benefit and enjoyment of that necessary superiority over their neighbors, which well-directed industry must always give. And it is fair to presume that no one will contend that it is essential to a fair bargain, or the making of a contract on principles of perfect equality, that the parties in respect to the subject matter should be required mutually to disclose their respective plans or anticipated profits.

All will allow that the hope of gain, leads to enterprise and activity, in the various pursuits and business of men. And it may be stated as an undeniable general proposition—subject, of course, to many exceptions — that the profits of every transaction, when not dependent on fortuitous circumstances, arise from the superiority of one party to the other, in some material knowledge in respect to the subject matter of the contract. This feature becomes more apparent as we extend our inquiries, and trace the analogy in different directions, of cases of the most opposite moral character — from the arts of deliberate knavery, to the fairest gains of skill and industry. Now, it is true, that the law of contracts, as it is settled in England and the United States, recognizes as its leading principles, that good faith must be preserved by the contracting parties towards each other; and that fraud or art on either side, affords good ground for the interference of the ministers of the law, to protect or relieve the injured party.

He who, in his social as well as business relations with his fellow-man, follows the golden precept — "*Whatsoever ye would that men should do to you, do ye even so to them*" — has a sure guide for his conduct in every exigency of life. He will do justice and do equity. For a people following this rule, human laws would be unnecessary; they would be "*a law unto themselves.*" But we must take the world as it is, and deal with men as we find them. And although the reflection is a humiliating one, it is nevertheless a reality, that however men may shrink from deliberate and bare-faced knavery, they are too prone to indulge in mental sophistry; too prone to argue themselves into a compliance with their secret inclinations; and thus cheat themselves out of their own honesty.

The law is designed to protect the innocent and weak from the machinations and corrupt designs of those who disregard the great precepts of nature and morality. And our present inquiry is, to ascertain whether existing laws, in regard to contracts, are adequate to correct the mischiefs they are designed to prevent. We are in search of a principle which, in the making of contracts, shall unite morality and law and make a just and invariable rule. We are in search of a principle, as the basis of all contracts, which will not admit of apparently opposite and incongruous application. We are in search of a principle which, without shocking our notions of morality, will afford a safe, and, at the same time, just rule, by which we may determine what extraneous facts, exclusively within the power and knowledge of one party, shall render a contract void. We are in search of a principle that shall afford an unerring and just rule by which our Courts, in order to prevent inequality, may determine when, and under what circumstances, one party to a contract is or is not bound in law to disclose to the other the facts or motives which led to it. In short, we are in search of a principle which will establish uniformity — which may serve to elevate temporal laws to the dignity and equality of unerring justice.

This is by no means a question of pure speculation. If a uniform and inflexible rule can be discovered, it will afford indubitable testimony that men are capable of understanding and practising exact justice. And it will effectually relieve our Courts from the reproach, to which they are now exposed, of applying directly opposite rules to the same questions, as it may chance to arise in a Court of law and equity.

In order that the inconsistency of which we complain, may be made more apparent to the general reader, it may be well to state a few of the general rules touching the matter of contracts, as they have been settled in Great Britain and the United States — two of the greatest commercial nations in the world.

It should be remarked, in this connection, that however diversified the question may have been presented, and however varied in feature — whether it has arisen from extraneous facts not known to one of the parties — concealment in sales, or inadequacy of price — still, the question is really the same.

The rule of the common law, as it has long been considered settled in England,

and as it is now fully recognized in the United States, declares, in unequivocal terms, *that a buyer is not bound to communicate his knowledge to the seller, of extraneous facts, which influence the price of the commodity, and which was exclusively within the knowledge of the buyer.* And the only guard against palpable fraud, or undue advantage, which is thrown around the innocent and unwary, is found in the declaration, "*that each party must take care not to say or do any thing tending to impose upon the other.*"

It is also true (though common law Courts have not expressly said so,) that the rule, as stated above, was undoubtedly designed to apply to cases where the means of knowledge are equally accessible to both parties. But the text of the common law is without qualification. Writers upon the law of contracts, both in England and America, state the doctrine in such broad and general terms, that its application to particular cases, without modification, not unfrequently causes a shudder, and our feelings revolt at the apparent injustice and utter inequality of the law.

It is laid down as one of the fundamental precepts of the common law — as a settled rule, which is beyond the reach of argument — that *the knowledge by the buyer of any fact materially enhancing the value of property — and the known ignorance of it by the seller at the time of sale* — will not affect the validity of the sale. While this doctrine is enunciated and enforced in this country, by a Judge * distinguished for learning, correct judgment, clear perceptions of moral duty, and great purity of character — another, † equally distinguished, maintains that "*not only good morals, but the common law, requires good faith; and that every man, in his contracts, should act with common honesty, without defrauding his neighbors by false allegations or fraudulent concealments.*" The principle, which these apparently discordant rules are designed to establish, is the same, undoubtedly, in both cases. The end, sought to be attained, is to preserve good equality and good faith in contracts. It is to hold in check the over-reaching and dishonest. It is to afford security to the fair dealer.

If, in reply, it is said, there is a distinction in these and other similar cases, when the law applies apparently different rules, let us inquire where shall the line of distinction be drawn? If these rules are necessary parts of a great system, and essential to its perfection, it would seem they could be made to harmonize in their application. That they are discordant in theory, cannot be successfully denied. How, then, can they be made to harmonize in their application? This cannot be done, unless it be admitted that one is the *general* principle and the other the *exception*. If this position be assumed, it leads at once to the conclusion, that the apparent contradictions to natural justice in our civil jurisprudence, is the result of policy or necessity; and that, for wise and inscrutable reasons, the law *permits* what it does not sanction.

* Chief Justice Marshall.—2. Wheaton 195.
† Chief Justice Parsons.—4. Mass. 489.

If this conclusion prevails, it becomes important to every one, whose conduct is guided by moral precepts, to know what are the limits of these opposing rules of justice and policy. It is necessary to understand this, with a view to private conduct and also to avoid infractions of the law.

(*To be Continued.*)

ART. IV.—AGRICULTURE, AND THE INFLUENCE OF AGRICULTURE ON MANUFACTURES.

THE EFFECTS OF COMMERCE AND MANUFACTURES UPON AGRICULTURE IN EUROPE, MANUFACTURES IN MIDDLESEX, MASSACHUSETTS.—NUMBER OF CATTLE, HORSES, AND SHEEP, TO THE SQUARE MILE, IN ENGLAND AND WALES.—RAILROADS IN MIDDLESEX.

THE following address, delivered by E. H. DERBY, Esq., before the Middlesex County, (Massachusetts,) Agricultural Society, we have selected from the December number of the Merchant's Magazine.

Although designed for farmers of Middlesex county, yet, this address is fraught with instruction to the western agriculturalist; and contains many valuable facts, which we commend to the consideration of our readers. From this, we learn, that the county of Middlesex annually produces manufactures amounting to $23,000,000. An amount more than double the average exportation of breadstuffs from the whole country; and equal in value to about one half the whole cotton crop of the United States. We are further informed, that the lines of rail road already constructed, and chartered, exceed two hundred miles; and that the population of the county live within an average distance of one mile from the iron-way.

We trust that such facts as these, will induce the people of the South and West, to inquire into the causes which conspire to concentrate the wealth of the country in New England:

"AGRICULTURE has become essential to life. The forest, the lake, and the ocean, cannot sustain the increasing family of man. Population declines with a declining cultivation, and nations have ceased to be with the extinction of their agriculture.

"When harvests are exuberant, joy and health follow in their train; but let delusive prosperity draw industry from agriculture; let an insidious disease attack one of its important products; let an insect, or a parasite, fasten on a single esculent, and mark the effect upon commerce and human life. Upon such an event all business is deranged; the commercial marine of the world proves itself unequal to the crisis; sloops of war and frigates become carriers of grain; warehouses,

canals, railroads, and ports, prove insufficient to the exigency; masses of specie flow from the guarded treasuries of the old world to the rude cabins of the prairies; manufactures and public improvements stop in their course; famine and pestilence invade provinces and States; and the pale survivors, reckless of those ties which bind man to his birth-place, brave storms and shipwreck, sickness and death, on the route to new and untried regions.

"A glance at such events, which the present year has witnessed, must impress us with the vast importance of agriculture, both as an occupation and a science.

"Agriculture, in ancient times, was esteemed and honored. In classic Greece and Rome it was the theme of the popular poets of the age, and was not deemed unworthy of distinguished warriors and statesmen. We read of Cicero at his Tusculan villa, of Cato at his farm, of Cincinnatus leaving his plough to command the armies of the republic; while the great naturalist, Pliny, in his beautiful letters, prides himself on his vineyards.

"The overflow of the Nile, the fertilizer of Egypt, has been celebrated for centuries as the great festival of the country; and in that "central flowery land," which claims such remote antiquity, the sovereign of three hundred millions, 'the son of heaven, whose person is too sacred to be seen, whose imperial despatch is received amid burning incense and prostration, and in whose presence no one dares speak but in a whisper,' annually exhibits himself to his subjects, holding a plough in honor of agriculture.

"In England, too, whose nobles shrink from all connection with trade, agriculture is highly honored. Earls, dukes, and princes, preside at agricultural festivals, compete for prizes, and do not disdain to write treatises on the culture of roots, the rotation of crops, and manufacture of composts Sir Robert Peel, the great statesman of the age, is one day bearing down by his eloquence the opposition of Parliament to his vigorous and enlightened policy, and another discussing the prospects of agriculture among the farmers of Tamworth.

"It is, too, with mingled pleasure and pride that we recur to the fact, that the hero and statesman, who led the armies of our revolution, was himself a practical farmer. Amid all the excitement, harassing duties, and embarrassments of a protracted war, he directed by letters the operations of his farm, and finally retired from the highest position to which talent and patriotism could aspire, followed by the love of his countrymen, to devote to agriculture the close of his life; and it is a little remarkable that his example has been followed by nearly all who have succeeded to the office of President.

"In view of these facts, may we not ask, has agriculture enjoyed in New England the prominence and popularity to which it may well aspire; and is the position of the farmer, lord of the soil here, and but a tenant in the old world, duly appreciated?

"It is obvious to the reflecting mind that the farmer has been affected by depressing influences, but is it not as apparent that they are ceasing to operate?

"Our fathers did not enjoy, as farmers, the privileges which we possess. The country, emerging from a long war, was deficient in capital. Implements and buildings were rude and defective; a few small seaports and fishing towns formed their principal markets; and access to these was by no means easy; for the bridle path blazed through the forest, the ford and the ferry, were but a poor substitute for the country road, the turnpike, canal, and railroad.

"At a period, too, when the wars of Europe made us the carriers of the world, it is not astonishing that talent and enterprise should have been drawn from the secluded home of the farmer to the perilous 'march upon the deep;' to the uncertain pursuits of trade, or to the sharp competition of professional life; growing with the growth of commerce, or be tempted to exchange the rudeness of the country for the enervating refinement of the city.

"Temperance, taste, and progressive art, education and the weekly press, had not yet guilded the home of the farmer; judicious enterprise had not yet drawn the daughters of New England from the distaff to the water-falls, and enlivened the adjacent districts by the creation of valuable markets.

"Contrast Massachusetts to-day with Massachusetts half a century since. Counties, checkered with factory villages, tied together by a fast spreading network of railroads, sparkling with school-houses, churches, and tasteful residences, and improving farms, and peopled by an intelligent and energetic race—compare these with all that preceded them, and we shall find much to cheer us in the contrast, without detracting, in any degree, from the courage and patriotism of our progenitors.

"If, in addition to the progress of the country, we take into account the vast increase of wealth, the advance in the mechanic arts, the discoveries of chemistry, shall we not arrive at the conclusion that agriculture now presents a new aspect, assumes a new importance, and offers new attractions?

"Let me invite you, on this occasion, to consider the degree of influence which science and capital may exert upon agriculture; to examine some of the effects which the growth of manufactures, commerce, and public improvements, produce upon the agricultural interest; and to briefly discuss the interest, prospects, and policy of the farmers of Middlesex.

"In estimating the importance of science and capital to agriculture, we learn, from the lessons of experience, that a fertile soil alone does not carry agriculture to perfection. Should we seek the spots where agriculture gives the largest and most remunerative returns for a given space, we should find them not on the fertile banks of the Nile or the Ganges, the rich plains and valleys of Sicily, or the prairies of the West, where a virgin soil and low prices attract so many youthful cultivators. Far otherwise. You must look to Flanders and Holland. There, science and capital combined, in a harsh climate, have rescued vast wastes from the ocean, and converted sterile marshes and barren sands into productive fields, the very garden of Europe; or look at England, our parent land, where the same

powerful combination has transformed the sandy plains of Norfolk, for centuries abandoned to the rabbit, into luxuriant fields of wheat, clover, and turnips; and changed the fens of Lincolnshire, which encircle the old town of Boston—fens, for centuries, the resort of wild ducks, geese, and other birds of passage, into the granary of England.

"The soil of Belgium was originally sand and clay alone. It has been enriched by ashes and composts, until it has become a rich, black, loamy mould. Tanks are provided on the farms for liquids, and each cow is estimated to produce ten tons of solid, and twelve of liquid manures. Every expedient is resorted to, both to increase their quantity and to improve their quality. Rotation of crops followed; and the result of these efforts is, that Belgium sustains a population of three hundred and fifty people, sixty-seven cattle, and seventeen horses, to the square mile; usually raises her own breadstuffs, and exports wheat, madder, flax, wool, and bark, to other parts of Europe In Holland, where the dike, steam-engine, and wind-mill are employed to prevent the incursion of the sea upon land gained from its bosom, a population of two hundred and fourteen to the mile is sustained, and large exports made of butter, cheese, and other agricultural products. The average value of land is nearly three hundred dollars per acre, although it is burthened with opppressive taxes. *

"To learn the causes of the astonishing fertility and large returns flowing from the conquests of art over nature, we must recur to the history of Belgium and Holland. For centuries they have been the seats of commerce and the arts.

"In the eleventh century, Ghent and Bruges, cities of Belgium, were important commercial towns, and supplied the courts of Europe with silks and tapestries. In the fifteenth century, Ghent contained fifty thousand weavers, and Bruges and Antwerp had each two hundred thousand people, and were the marts of the civilized world. In the sixteenth century, the harbor of Antwerp often contained two thousand five hundred vessels; her gates were daily entered by five hundred loaded wagons; and her magnificent Exchange, still standing, erected before the discovery of America, was attended twice a day by five thousand merchants.

"The country was covered with roads and canals; capital and art were applied to agriculture. The effect of a population, growing in numbers and wealth, was to stimulate the efforts of those engaged in agriculture; and, for six hundred years, commerce, manufactures and agriculture grew together, until the latter attained a height which has survived the wars and revolutions which nearly prostrated the former.

"Holland, too, has been, for centuries, the seat of manufactures, commerce, and wealth. In the seventeenth century Holland was the great naval power of the age, and controlled the trade of the Indies. Her shipping, 900,000 tons, equalled that of all the other powers of Europe; and her great cities, united to-

* Holland annually exports thirty-eight million pounds of cheese, and eighteen million pounds of butter. The average rate of the land tax, on farms, is ten to fourteen guilders per arpent—about three dollars per acre.

gether, and to the Rhine by canals, the admiration of Europe, were each devoted to some great branch of manufactures or commerce. From these agriculture received a mighty impulse.

"When England became the queen of the seas, and the patron of the arts — when she had invented the steam engine and the spinning-jenny, and applied her beds of coal to the production of iron — when she had opened her canals, and begun to build docks and harbors, a stimulus was given to agriculture, and wealth and science were drawn to districts which had lain dormant for centuries. They were both applied to the improvement of land. Soils were analyzed; tools of all kinds improved; lime and plaster transported by canals to the spot that required them; bone dust collected from the battle-fields of Europe, from La Plata and California; dikes and drains constructed; oil-cake imported, even from our county of Middlesex, to fatten her cattle and enrich her soil; and vessels were sent around Cape Horn to procure the excrement of birds. The produce of agriculture has been thus more than doubled, and her inhabitants carried to an average of three hundred per square mile, consuming food and occupying houses vastly superior to those of their fathers.

"England and Wales, with less than 60,000 square miles of surface, sustain 18,000,000 people, 26,000,000 sheep, 4,000,000 head of cattle, and 1,500,000 horses, in a condition unrivalled in any section of the world, and produce annually, beside, at least 240,000,000 bushels of breadstuffs.

"The county of Lancashire, the great seat of the cotton manufacture, the Middlesex of England, presents results more striking than those of the island at large. It has increased with a rapidity almost unexampled in the history of industry, and exhibits a population of 1,800,000, or 1,000 to the mile, on a space of but 1,800 square miles, an area barely equal to our two counties of Worcester and Middlesex.

"Lancashire, like our Middlesex, is studded with factories, and covered by a net-work of railroads and canals. Its soil, like that of Middlesex, is devoted principally to the culture of grass, fruit, and esculent vegetables, while its breadstuffs are drawn from other districts.

"There would seem to be something congenial to agriculture, in the very atmosphere of commerce and manufactures; for we read in the history of Carthage, by its conquerors, that around that ancient seat of trade and manufactures, and under the burning sun of Africa, there were clustered beautiful farms and country seats, canals, olive trees, and vineyards.

"The achievement of science and capital in the agriculture of the old world, lead us to appreciate aright their value, on this side of the Atlantic, and to take a more correct view of their importance and uses. A few rash experiments here, guided by no practical skill, may have led some to distrust theories and the value of book learning. Others have looked with a jaundiced eye on the accumulation of wealth—have regarded its votaries merely as a mercenary race, a class useless

to the community, instead of viewing them as stewards accumulating property for the benefit of society; forgetful that their wealth, whether invested in *banks*, *ships*, *docks*, or *avenues of trade*, or in *loans upon land*, is giving an impulse to the whole country.

"To insure the progress of agriculture, it is for science to indicate the path, to suggest the elements of the soil, to point out its deficiencies and the appropriate remedy, to present the improvements in tools, fences, and buildings, and the discoveries of art; but in vain would she place her finger upon these, unless her ally, capital, should follow, and furnish the stocks, tools, structures, and fertilizing substances, and aid in creating avenues from the farm to the market.

"There was a time, but few years since, when the credit of our State and country, now so elevated, was deeply depressed—when the bonds of Massachusetts found no purchasers. Science had planned that great avenue which makes Boston one of the seaports of the West; but means were wanting. By whom, think you, were they furnished? By those unfortunate Irishmen who seek here a refuge from bad laws and national calamities, who toil upon our public works, and to whom we owe all our canals, wharves, and railroads.

"The quiet accumulations of these small capitalists in the savings' bank of Boston, absorbed more than half a million of our bonds, and finished the Western Railroad.

"The progress of cities, towns, and manufactories, has created wealth, nurtured science, and aided their diffusion. Towns and cities have reacted on the country, have created a demand and liberal price for its products, and furnished it with the means of fertility, while towns and cities may trace their expansion to commerce and the arts.

"Commerce and manufactures have been fostered and stimulated by public improvements, which have collected and distributed their materials and products. The alliance thus cemented between the ship, the canal boat, the car and the spindle, the forge and the plough, has created great and prosperous nations, and verified Lord Bacon's oft-repeated theory, that three things are essential to the prosperity of a country—*fertile fields*, *busy workshops*, and *easy communication*.

"While, in England, the Netherlands, and portions of France, Germany, and Italy, all these advantages are enjoyed, there are extensive regions in which the fertility of nature is neutralized by the want of facilities of intercourse; and for centuries past, commerce and manufactures, population and agriculture, have languished or receded. When the Council of Castile were invited by an eminent engineer to open a canal from Madrid to the sea, they declined the invitation—coming to the sage conclusion that, if God had designed a navigable river for Madrid, he would have made it himself; and Spain, estranged from commerce and improvements, has made so little progress, that it has been wittily suggested that, were Adam to revisit this sphere, he would find the face of nature less changed, and feel himself more at home in Spain, than in any other region.

While, in England and the Netherlands, the surplus of one district supplies the deficiencies of another, in Spain, it is not unusual for one province to be desolated by famine, while an excessive crop in another has filled the granaries to overflowing, and made wheat comparatively worthless.

"In Spain, land is stationary, or declining with the decay of towns and villages; but near the towns and cities, the canals and railways, of the flourishing regions we have described, land rises in value with the improvement of cultivation, with the increased prices for its products, and with the progressive demand for sites for warehouses and country seats. It is enriched by its very vicinity to the centres of population, by the fertilizing materials it derives from them, whose weight and bulk forbid their carriage into remote districts. In this respect, lands in populous districts have a decided and preponderating advantage over those of the interior.

"The progress of improvements, and the growth of towns in the United States are producing the same effects we have witnessed in Europe.

"The Erie and Champlain Canals, with the application of steam to the Hudson, have created, in the last twenty years, great cities, at Buffalo, Rochester, Utica, Albany, Troy, and Brooklyn, and made New York the third, if not the second commercial city of the world.

"Singular as it may seem, many influential residents in the city of New York long opposed the Erie Canal. Her leading editors ridiculed the "big ditch" of Clinton — unable to distinguish, through the dim vista of the future, the stately warehouses, palaces, and churches, elegant avenues, and the forest of masts, with which it was to embellish the Island of Manhattan.

"Orange and Dutchess Counties anticipated that the wheat and dairy produce of the Genesee Valley would depress their farms, although more contiguous to the market of New York. On Long Island, a gentleman of my acquaintance attended an election, where his friend, the successful candidate, was chosen on the ground of his opposition to the canal.

"But the farms of Orange and Dutchess still maintain their ascendency; and such was the impulse given to Long Island, by the growth of New York after the Erie Canal had opened—such the increased demand for corn, hay, fuel, poultry, and other produce, that my acquaintance, on a second visit, found his friend again a candidate, on the ground that he had become a warm supporter of the Erie Canal.

"If canals have contributed to such results on both sides of the Atlantic, what is it reasonable to expect from the discovery of railroads?—an improvement rapidly superseding the '*ne plus ultra*' of the preceding age.

"The same power which draws a ton upon a turnpike, draws fifteen upon a level railroad, and with four-fold the speed. The railroad combines the properties of the coach, the wagon, and the race-horse. With six-fold the speed of the canal, it regards not the snows of winter, and scales mountains impervious to

canals. How far is it essential to our seaports and factories? They require a constant and uninterrupted communication, which canals cannot give, as the ice closes them nearly half the year.

"What do those factories demand? The cotton and wool of distant States and countries; the iron and coal of Pennsylvania and Cape Breton; the lumber and lime of Maine; the indigo and drugs of India; the oil of the Pacific and of Africa; and the factory girls of all New England. Obliterate the railroads, and would their business be worth pursuing?

"Obliterate the railroads, and would not half of Boston go to decay?

"At the commencement of the railroad system in New England, some fears were entertained that the effect might be injurious to the farms which encircle our metropolis.

"This opinion was countenanced, for a brief period, by the competition of the new milk farms along the line of the Boston and Worcester Railroad, with the dairies in the suburbs, and by the depression of agricultural products through the country, which followed the commercial revulsion of 1837.

"Doubtless, some changes were effected; but have not the suburban dairy farms been required for building lots, at treble prices? Are not the streets of the metropolis extended far into the country, on seven great lines, and is not land sold by the foot, more than ten miles distant from the Merchants' Exchange of Boston? and are not farms, once supposed to be ruined by the location of railroads, like the Winship and Hunnewell estates, in Brighton and Newton, at least quadrupled in their value? Have they not shown that the railroad is by no means the road to ruin? Do not milk, butter, corn, oats, pork, and beef, command remunerating prices?—the latter, in particular, when you cannot buy a sirloin in the Quincy Market under a shilling a pound! If, occasionally, produce from the interior competes in our market with that of farms in the vicinity, does it effect more than a change of use, or of the course of cultivation, and does not the increased size of the market draw in the market-wagon from a larger circle? Or, if any temporary depression occurs, are not farms in the outskirts of the counties around Boston, more elevated than the adjacent farms are depressed?

"What would be the position of the farms around Boston to-day, if our railroads and inland marts had no existence, were we to banish the hundred millions of wealth and the one hundred thousand people, which have accumulated in and around Boston since the first movement in railroads, and send them to New York and New Orleans, where they would have been planted, if such movement had not been made?

"Do the one million of tons now moved annually by the railroads out of Boston, doubling once in four years, give no impulse to industry in and around the city? or do these great works of amelioration, which bear industry, the only marketable commodity of the poor man, to the best theatre for its exercise, give no increased value to industry itself?

"Does not every house erected in and around the city, and every ship added to its rolls, require nearly an acre of land to supply its immediate demands, and is not every such house and ship a market? and are not every drain, vault and chimney, a source of fertility? Are or are not the effects which attend the progress of the railroads of Massachusetts injurious or beneficial to the county of Middlesex, and what are its position and prospects with reference to agriculture?*

"Our county of Middlesex embraces an area of 800 square miles; and its population, rapidly increasing since the census of 1840, may now be safely estimated at 120,000, or 150 to the square mile.

"The surface presents no high mountains or deep valleys; but, diversified by hill and dale, meadow and plain, and watered by four large rivers, the Merrimac, Nashua, Concord and Charles, offers numerous water-falls and sites for manufactories.

"Although modern art has to a great extent superseded modern labor, the constant progress of manufactures in Middlesex creates a demand for operatives far exceeding the home supply. Prolific as the county may be in one branch of production, that of boys and girls, all New England, and even New York, Nova Scotia and Canada, have contributed to its supply. More than twenty-six thousand operatives are now assembled in Middlesex from that wide region which lies between the Hudson, the St. Lawrence, and the sea. The annual produce of their industry appears in the cottons and woolens of Lowell, Waltham, Dracut, Billerica, Shirley and Framingham; in the ships of Medford; the lead of Concord; the soap, candles and glass of Cambridge; the cabinet-ware and leather of Charlestown, Woburn and Reading; the paper of Newton and Pepperell: the boots and shoes of Natick, Holliston, Hopkinton, Stoneham, South Reading and Malden; and the varied manufactures of many other flourishing towns

"In manufactures, Middlesex annually produces $23,000,000, and is, in this great department of industry, the leading county of the State and of the Union. The annual products of manufactures, in this single county, are more than double the average exportation of breadstuffs from the whole Union, and would pay far more than a moiety of all the flour, grain and corn exported during this season of famine. Rapid as has been the improvement of agriculture, and wide as has been its expansion in new counties and States during the last twenty years, the advance of manufactures has been quite as rapid; and if there be truth in the remark of a great British statesman, that every loom stopped in England stops half a dozen ploughs, how many American ploughs have the looms of Middlesex set in motion.

"The county of Middlesex is alike distinguished by railroad enterprise. It is

* The effect of railroads, thus far, appears to be to ameliorate the condition of those residing at a distance from seaports, and to elevate the value of their farms and products, without depressing property nearer to the great markets. The increased resources of the interior are illustrated by the fact that, in August last, nearly $3,000,000 was subscribed in the country for a short railroad from Manchester to Lawrence; while it took nearly twenty years, half a century since, to raise three-quarters of a million to construct the Middlesex Canal.

the great railroad county of the State, being intersected by the four inland lines from Boston to New York, Vermont, New Hampshire and Maine, beside various cross-routes and branches.

"The lines already constructed or chartered in this county, and sure to be finished, exceed two hundred miles in length, furnishing one mile of rails for less than four square miles of surface. So numerous have these lines become, that the average distance between them does not exceed four miles, and the population of the county live within an average distance of one mile from the iron-way.

"The combined effect of manufactures and railroads has been to furnish Middlesex with numerous markets. Within its area are the three cities of Lowell, Charlestown and Cambridge, of recent growth, with an aggregate population of sixty thousand, and at least a dozen towns with a population varying from two to five thousand each.

"Close to its borders are the embryo cities of Lawrence, Fitchburg and Nashua. Even Assabet, too, in our immediate vicinity, gives promise of a future city; while Boston, the populous and wealthy capital of New England, touches the south-eastern angle of the county.

"With such markets, and facilities for communication, which nearly equal those of the most prosperous districts of Europe, and are surpassed by none in America, what are the agricultural products of Middlesex, and how far are they capable of expansion?

"Their aggregate amount, by the census of 1845, is but $2,300,000—an amount large in itself, and yet but one-tenth of the produce of its manufactures; and may we not safely infer from this disparity, if from no other obvious facts, that the agricultural resources of the county are not yet fully developed; and that, when developed, the markets of the county require a vast amount of products not raised within its limits, and furnish an overplus of clothing and other manufactures, which may with advantage be applied to their purchase?

"If we can scan the agricultural returns of Middlesex, for the year 1845, we find its stock as follows:—

34,728 head of cattle, or - - - - -	43	to the square mile.
9,776 head of horses, or - - - - -	12	" " "
4,428 head of sheep, or - - - - -	6	" " "

"Let us contrast these returns with those of England and Wales. This highly cultivated country exhibits, in an area of less than 60,000 square miles—

4,000,000 cattle, or - - - - -	67	to the square mile.
1,500,000 horses, or - - - - -	25	" " "
26,000,000 sheep, or - - - - -	450	" " "

"If we reduce these to one standard, it must be apparent that Middlesex, with all her improvements, does not sustain one-half the amount of stock to the square mile which is reared by England and Wales.

"While we concede to England and Wales some superiority in soil over Mid-

dlesex, we must not forget that there are barren mountains, both in Wales and the northern districts of England; that a vast extent is there devoted to wheat and barley, to preserves for game, and ornamental parks; and may we not, then, safely infer that our county is competent, under improved husbandry, to double or treble its stock of animals?

"What are the cereal and vegetable products of Middlesex? The census of 1845 apprizes us that Middlesex produces, in round numbers:—

427,000 bushels of corn and grain, worth - - - - - - - -	$264,000
2,174,000 bushels of esculent vegetables and fruit, - - - - -	554,000
78,000 tons of hay, - - - - - - - - - - - - - - -	777,000
Milk, valued at - - - - - - - - - - - - - - - - -	153,000
Butter, valued at - - - - - - - - - - - - - - - - -	163,000
Cheese, eggs, poultry, honey, berries, &c., - - - - - - - -	34,000
Stock sold estimated, as in England, at one-fourth of the whole,	216,000
Wood and charcoal, products of forests, - - - - - - - - -	187,000
Total, - - - - - - - - - - - - - - - -	$2,368,000

"May we not anticipate from improved husbandry, the increase of cattle, and consequent growth of manures, a large increase in the amount of some of these productions?

"The tables to which I have adverted, gleaned with much care from the census of 1845, are fraught with interest to the farmer of Middlesex. Let us glance at some of the varied lessons which they teach him.

"First. That the principal products of his industry, vegetables, fruit, hay, milk and fuel, or nearly three-fourths of the whole, are of such perishable or bulky character, as not to admit of easy transportation to his market towns from the remote interior.

"His close vicinity to the market enables him to supply it with the least cost, to avail of the highest prices, and to carry back to his farm a return-load of enriching substances; while the farmer of the remote interior would find his profits in a great measure absorbed in the cost of compressing of hay, the deterioration of milk and vegetables, and the increased expenses of conveying all to market. This advantage adds to the value of a Middlesex farm, and holds out to the Middlesex farmer a strong incentive to exertion.

"Second. These tables teach us that nature has peculiarly adapted Middlesex for those bulky products which are most appropriate for its position. While it is prolific in fruits, roots, fuel, grass and milk, its supplies of grain, corn, pork, wool, butter and cheese, which admit of transportation from a distance, (for the produce of many acres may be packed into a single car,) are moderate in extreme. Middlesex plies at least 400,000 spindles. She raises not one pound of cotton. Her 4,428 sheep would not supply her spindles for a day, nor furnish her population with one annual dinner of lamb and another of mutton. Her sheep, too,

are annually diminishing, giving place to milch cows and cultivation; and she must depend on the interior for both wool and mutton, both indispensable to her comfort and prosperity.

"Third. With respect to breadstuffs, Middlesex produces, annually, but 427,000 bushels of wheat, corn, rye, oats, barley, and buckwheat, not one-third enough to supply her own population, to say nothing of her adjacent markets. Her whole annual production will barely suffice to give each horse in the county half a peck of corn per day for his sustenance, and no generous or judicious farmer can think of allowing less. The annual wheat crop of Middlesex, but 1,952 bushels, would provide but one treat of doughnuts for the people of the county, and all the pork we can afford to raise will scarcely suffice to fry them and dress those fresh codfish, mackerel and halibut which Providence has placed around our shores, but denied to the prolific regions of the West.

For pork and breadstuffs, and, I may add, for butter and cheese, as the railroads are converting all Middlesex into a milk farm, the county is dependent on the remote interior.

"Let us glance for a moment at a single county of the West, about two-thirds the size of Middlesex. The county of Genesee, New York, by the census of 1840, exhibits 1,940,000 bushels of grain and corn, 154,000 sheep, and 49,000 swine. As a Middlesex farmer, I see nothing to regret in this excess, or to tempt me to exchange my acres in Middlesex for as many or more in Genesee. Nature has bestowed different blessings on different sections of the Union. If at the West she has placed her layers of limestone beneath a fertile soil, adapted it to wheat and corn, or spread her beech-nut forests over the hills to furnish mast for the swine, and created pastures congenial to the sheep, she has placed us near the ocean, the great highway of nations; she has shaped out ports and harbors for commerce; rivers to impel spindles; has clad our rocky hills with forests for timber or fuel; and, if she has planted boulders in our fields, a market exists for them in the wells, cellars and walls of our growing towns and cities. She has given us land which enlightened industry will adapt to our position, and endued us, I trust, with sufficient energy to make it available.

"Within the last twenty years agriculture has made great advances in Middlesex; meadows have been reclaimed; drains have been opened; beautiful orchards have been planted; tasteful houses and improved cottages and barns been constructed; the races of animals have been improved; the sources of fertility have been guarded; land more highly cultivated; and the society I have the honor to address has, no doubt, contributed to the progress of agriculture.

"But why should not further and more rapid progress be made, and why should not Middlesex present as bright an aspect as the most productive counties of England? Why should we not become the pattern county in agriculture as well as manufactures? We have markets for our produce nearly, if not quite equal, to those of England. The price of hay, straw, milk and vegetables here,

is quite as high as the average prices of England. In Indian corn, with its masses of fodder, which will not ripen in England, we have decided advantages. In the apple, congenial to our soil, but which does not attain perfection in England, we are also before her. In addition to all this, every frugal and industrious man may here own his farm in fee, is free from the burthen of fuedal tenures, from oppressive taxes, and poor-rates; and may worship God, educate his children, and vote according to his conscience — a privilege not always accorded to the English tenant.

"If our land be less fertile than the soil of Illinois or Wisconsin, the crop is not absorbed in the cost of transporting to market, and we have no occasion to dread the fever and ague. If our climate is harsh, the wind from the ocean invigorates and animates our frames, and our wives are not saddened in the rude cabin of the lone prairie by the remembrance of an early home. Here we have intelligence, science, capital, and the arts of life. Around us are schools and seminaries of learning for our children, and in our midst is that venerable institution, Harvard University, the mother of piety and learning, nourished by the beneficence of the honored dead.

"And Middlesex, too, has one living son who defers not his munificence until wealth loses its value; until the candle of life flickers in the socket; who, amid a career of usefulness and honor, which has signally advanced the great interests of the county, devotes a fortune to the advancement of the arts. Middlesex will alike appreciate and enjoy the noble donation of Lawrence to found a school for the practical sciences, to create engineers, miners, machinists and scientific farmers, to form ingenious heads 'that shall guide the hard hands ever ready to toil on her hard materials.'

"But while the farmer of Middlesex enjoys these advantages and incentives to exertion, does not much still remain for him to accomplish? Do we not occasionally see half-tilled fields where the plough has barely skimmed over the surface, and little or no aid has been given to nature? Does not the waving grain, by its light unfilled heads, sometimes indicate the deficiencies of the sower? Do not some mowing-fields, brown with their unprofitable herbage, and checkered with white weed, mourn the absence of plaster, compost, and ashes? And when we reflect that a single acre of rich pasture is competent to maintain a cow, is not our sympathy often excited for that useful and most respectable animal, as well as for her neglectful owner, when we see her threading her weary way through barren acres where not a single blossom of white clover perfumes the air; now roving through alder-swamps; now climbing hills covered with birches or brambles; at times lost amidst the thicket, and recognized only by the tinkling bell.

Again, let me ask, is not the county studded with deep meadows and swamps where the leaves and decaying vegetables of the country, swept down from the hills and plains by rain, have accumulated for centuries? — where the sounding rod of the engineer discovers trunks of trees at the depth of twenty or thirty feet

below the surface?—are not these mines of vegetable mould for enriching the upland?—may they not be converted into luxuriant grass-fields and pastures, almost insensible to drought, and enduring in their fertility?

"Are there not rocky hills, which have been wastefully stripped of wood unfit for cultivation, where the forest should again be tempted to rise, since it flourishes among ledges and rocks, twining its roots around them, and drawing potash from the decomposing granite? Would not such transition from a waste of rocks to wood-crowned eminences embellish the county, as well as provide timber and fuel?

"Is not the importance of this apparent when we consider the inducements offered by groves for country-seats, and remember the high prices of ship-timber, during a season in which a single white oak of Middlesex has produced $100 for timber? Neither must we forget that the locomotives which will traverse the county when the railroads which are now chartered are finished, will require the annual produce of at least 40,000 acres of forest.

"May not our nurseries and orchards be extended, and new varieties of fruit be introduced, and all our lands be more highly cultivated, with increased profit to the husbandmen?

"Are not the sewers and drains of our towns often suffered to run to waste, when thousands of acres might be fertilized by their contents?—and are not hundreds of tons of oil-cake, bones and ashes, annually shipped from the county to enrich distant shores, which could be used profitably at home? These are questions which demand the consideration of the Middlesex farmer. If he can solve these problems aright; if he can justly appreciate and avail of his position; if he will endeavor to improve it instead of complaining of the competition of those who can best furnish what he cannot well supply; if he possesses that generous spirit which delights to see others prosper while he prospers himself, a Middlesex farm offers a suitable field for his exertions.

"Does he aim at a life useful and beneficial to his race!—let him remember that every acre that he reclaims, every blade of grass that he bids to grow where none grew before, ameliorates the condition of his fellows.

"Does he aspire to wealth!—let him reflect that his gains, if less brilliant and striking than those of trade and professions, are more certain and uniform; and that gradual improvement of his estate, and the silent but continued rise in the value of property, promise eventual prosperity.

"Is he tasteful!—he will here find a theatre for taste in woods, orchards, and flowers, and the design of his buildings.

"Is he ambitious!—here are obstacles to be surmounted, subjects to be controlled, races to be improved, a kingdom in minature to be governed by wise and wholesome regulations.

"Is there anything warlike in his composition!—if his country does not de-

mand his services, let him bury his steel in the boulders, and shatter the rocks that deform his ground with gunpowder.

"Would he make conquests and achieve victories!—here weeds and water are enemies; here uncultivated plains are his Mexico, and deep fens and morasses his Texas and California; and no philanthropist, or casuist, will complain of his conquests, should he subdue them. Let him guard against the ambush of the crow, the wire-worm, the squirrel, and the fox; and repel the invasion of the blight, the white weed, and the sorrel. He shall see his battle-fields not stained with blood, but blossoming with clover; and when, in his green old age, he points out to his children his Palo Alto, Buena Vista, Cerro Gordo, and Cherubusco, and recounts his *bloodless* achievements, he shall feel greater satisfaction than if his victories had been saddened by the sacrifices and tears of thousands!"

ART. V.—AGRICULTURAL SOCIETIES,

THEIR IMPORTANCE AS AGENTS IN COLLECTING AND DISSEMINATING USEFUL FACTS. —THEIR PROPER OBJECTS ENUMERATED.—MAY BE MADE EFFICIENT MORAL AGENTS.

WHEN arranging the plan of our Journal, we kept in view the principle of doing the greatest good to the greatest number of individuals; and hence agriculture—owing to the numbers employed in it as a pursuit—was adopted as the leading subject: but we must fail in carrying out this important principle, unless our agricultural readers will aid us in the collection of facts and materials.

We may collect commercial and manufacturing statistics, from books and public journals; and may also, occasionally, glean facts in relation to *agriculture* from the same sources; but there are many important facts connected with the economy of agriculture, which rarely find a place in the journals of the west, or perhaps, of any other country. Among these, may be enumerated, the adaptation of the climate and soil of particular locations, to the different varieties of plants and fruit; and the difference in the mode of culture, which is proper to be observed in regard to any particular plant or tree, when transferred from one climate or soil to another; the relative cost of production, including land and labor; and also, the relative value of the different varieties of plants and fruits at the place where they are produced; the adaptation of the different parts of the country to the various kinds of stock; and the profits accruing from this branch of husbandry. These and many other facts of like nature, must come from the agriculturist: and to render them reliable and useful, they require to be established upon observations made through a series of years, and by more than one individual; for it may

happen, that from the variety of seasons, and of soils, as also, from a variety of treatment, the results will differ, not only in different years, but with different individuals; therefore the observations of a single individual for one, or a few years, are not to be fully relied upon.

And as the experience of every individual cannot be conveniently published, the best method of establishing agricultural facts, and of bringing them fairly before the country, is, through the agency of *agricultural societies.*

These associations are calculated to bring together the best minds of the country; and the facts observed and noted by each individual, being canvassed, and submitted to the judgment of the society, its sanction would give them credibiliiy, and authorize their adoption by the community.

To the ordinary objects of agricultural societies, should be added that of collecting statistics; these might embrace the following subjects, viz: the quantity of land cultivated; the quantity of each variety of produce; the number and value of each variety of stock; the number of manufactories and work-shops; the number of farm laborers, mechanics, artists and merchants; and also the amount of exports and imports of the several counties. These, with many other interesting and valuable facts, might be collected with but little labor, by the members of each society; and being published in some journal of general circulation, would enable the people of every part of the country, to form a correct opinion of the quantity of the products grown each year for market, as well as for home consumption. Such information would be beneficial to every part of the country. It would be the means of keeping both the purchasers and producers advised of the extent of the supply and demand of every article. It would furnish valuable information to such as wished to emigrate to the country, and bring the advantages of every location fairly before the people. And it would also be the means of attracting mechanics and laborers to those districts where their services were most in demand; and thus promote the convenience and prosperiiy of all parties.

In addition to those already mentioned, many other important subjects might be conveniently and profitably embraced among the objects of agricultural societies. Among these may be mentioned that of health: the diseases common to every country, are more or less frequent, or malignant, according to location; and it is often the case, that from some local cause, a certain point may be sickly, and another within a very short distance may be quite healthy. A few years of observation in regard to the causes of disease, would enable the people to indicate and select the more healthy locations; and thus they would escape from much bodily suffering, as well as the loss of labor and the payment of physicians. The number of schools, and the number of children attending them, in each county, would also constitute an important item in the statistics of the country: nor should religious statistics be neglected. In fine, agricultural societies, if directed to proper objects, are susceptible of being made most efficient literary and moral agents, as well as the promoters of agricultural prosperity.

We have only enumerated a few of the benefits which might be made to flow from these associations: there are many others which will doubtless suggest themselves to the mind of the reader; and we respectfully urge upon each one, to give the subject a fair and favorable consideration. We promise to do all in our power, to facilitate the proper objects of these societies, and shall at all times be pleased to make our Journal the organ of their proceedings.

We offer furthermore, to furnish every Agricultural Society in this, or either of the adjacent States with a copy of our Journal free of charge, (postage excepted) and will forward the same to the address of such officers of said societies as they may advise, so long as our Journal shall continue to be published.

ART. VI.—PIT COAL.

COMPARISON BETWEEN THE COAL FIELDS OF THE UNITED STATES AND OTHER COUNTRIES — PRICES OF COAL IN GREAT BRITAIN — THICKNESS AND DEPTH OF COAL SEAMS.

WE published in our first number, an article respecting the coal mines of the United States, and also one upon the relative cost of steam and water power; the former was taken from the St. Louis Union, and the latter from the Louisville Journal — both over the signature of "S". — but at the time, we were not aware that the article upon coal was a portion of a more extensive treatise upon the same subject. A few days since we received a well written pamphlet of forty-four pages, printed at Louisville, Kentucky, in which these articles are embraced. We are sorry to perceive that the article which we published was the latter part of the treatise; but as this arrangement of the subject will not materially lessen its value, we conclude that we cannot better serve our readers at present than to give them the first part, so that they may have the entire subject before them:

"If, of the two motive powers, water and steam, the latter is not only more convenient but less expensive, it is important to know where steam can be produced at the least cost.

"Were I to state, briefly, that our Western coal fields are more extensive, richer in quality, and far more accessible than any other known; that, on the Ohio, we can obtain coal at four cents per bushel as good as that which sells at sixteen cents per bushel at Manchester, England, I might not be believed. We have heard and read so much of the enormous quantity of coal used in and exported from England, of the wealth it has produced, and of the dense population on and around her coal measures, that we infer that the English coal seams are of greater purity, of vast thickness, and more cheaply worked than in any other country. Text books and Encyclopædias give us very few details of collieries;

and the following facts, which I have gathered from books devoted exclusively to the subject, and from topographical works, may be of interest, while they sustain my position.

"The only coal measures of practical interest to us are those of France, Belgium, Great Britain, Nova Scotia, and the United States. There are indications of coal in about thirty of the departments of France—that of Aveyron, near Spain, is said to be the most extensive, but, from the character of the country, or some unknown cause, is least worked. The latest authority I can find, gives only 7,000 persons employed in all the departments in the coal mines, and the supply of coals for the French steam marine is obtained from Belgium and England. There is a bed of coal, about 700 feet beneath the surface, extending from Valenciennes, France, under Mons and Namur to Liege, in Belgium. This is 150 miles in length, and six miles in width, and about 35,000 colliers are there employed. The quality of the coal is inferior, and its cost and distance from the sea prevent its coming in competition with the English coal.

"The coal beds of Ireland and Scotland are, on the whole, inferior to those of England, but have the same general characteristics.

"The coal measures of England are west of a straight line drawn from Gosport to the mouth of the river Tees; the most important being on the British channel, in South Wales; in Flintshire, North Wales; in Lancaster and Cumberland, on the Irish Sea; Durham and Northumberland, on the North Sea; and in Staffordshire and West Riding, in central England. The coal in South Wales is only used on the spot for the smelting and manufacture of iron, in the smelting of copper ore brought from Cornwall, and in manufacture of tin plate. The quantity thus used is about 40,000,000 bushels per annum. The Lancaster and Cumberland mines supply manufacturing cities in these counties, Liverpool and other cities on the channel, and a large quantity required for exportation to France, the West Indies, the Mediterranean, Ireland, and the United States. I may here remark that this coal (known as "Liverpool," "Orell," &c., in the Eastern and New Orleans markets,) will continue to be imported by us, at the present duty, as long as it will bring from twenty to twenty-five cents per bushel; but, at this rate, it cannot pay freight. It is used as ballast, and of course the price at which it is sold, is no criterion of its cost.

"The Durham and Northumberland, known generally as the Newcastle, colleries supply the western and southern sections of England, and the demand in France, Belgium and the Baltic; the chief market being London. Of the quantity required in that city, some idea can be formed from the consumption of nearly seven millions of bushels in her gas works.

"The coal of central England is used in Birmingham, Stafford, Sheffield, and other manufacturing cities. Edinburg is supplied with coal from the vicinity; and the extensive cotton manufactories of Glasgow and Paisley are also furnished from collieries in the immediate district.

"In stating the *cost* of coal to the manufacturing consumer, and for domestic purposes, this explanation is necessary: It is of kinds and names unknown to us. Seventy distinct varieties are sent to London, and the screened and the small coal, the slack and the cinder of the same variety are of different prices; often several varieties are combined, and the prices are as numerous as the compounds. Bovey coal is bituminous wood, holding an intermediate place between peat and pit coal; yet it is worked an hundred feet 'below the grass.' Sulphurious coal is dangerous to work; culm is of but little more value and neither are used when better coal can be had. The Orell and Cannel varieties are the best for manufacturing purposes, and come nearest, in appearance and value, to our Western coal. At New Orleans, for manufacturing purposes, the Pittsburg coal is, on the whole, preferred to them; at the Boston gas works the Indiana coal has been tested with and found superior to them; and in the accurate and numerous experiments made by Prof. W. R. Johnson, under direction of Congress, both Pittsburg and Indiana coal are proved superior to the best Liverpool and Newcastle coal for the generation of steam. When we shall separate the lamina of our coal seams, we shall probably find all the best varieties for the manufacture of iron known in England.

"At Sheffield the prices of household coal (a mixture of hard, small or *sleck*, and round or *cobblings*) is near seven cents per bushel; the strong, clear and hard kinds used for iron work, about fourteen cents. The immense consumption of coal in Manchester is supplied from collieries within eight miles, and at the cost of from six cents to fifteen cents. At Birmingham the price ranges from six cents to sixteen cents. The Leeds coal is inferior, and sells at about seven cents. At Liverpool the average cost of *small* coal is quoted at ten cents, and of *hard* at thirteen and three-fourths of a cent. At the Staffordshire potteries the price is occasionally less than six cents; but the coal seam is so soft that only one-third is mined.

"The London prices quoted are: 'Hetton' and 'Walsend' 25 1-10 cents, and Newcastle, first and second qualities, average twenty-two and a half cents. These high prices, however, are caused by city charges and transportation.

"By the term 'hard' coal is meant the hard layers of bituminous coal.

"I do not find any tabular statements of cost except in connection with gas works. Here, generally, the best Liverpool, Wigan and Cannel is preferred; and I give the table below, taken from report of J. Hedley, to the House of Commons in 1837:

	Price per Ton.	*Price per Bushel.*	*Description.*
Birmingham,	11s. 10d.	$0.108	Bromwich.
Staffordshire,	9s. 3d.	.095	do.
Macclesfield,	8s.	.074	Common.
Stockport,	15s.	.136	Half cannel, a 19s. [6d.
Manchester,	15s. 2d.	.138	Mixed.
Liverpool,	18s.	.163	Cannel.

	Price per Ton.	*Price per Bushel.*	*Description.*
Bradford,	8s. 6d.	.077	3 sorts used.
Leeds,	8s.	.074	One-third cannel.
Sheffield,	7s. 9d.	.072	3 sorts used cannel [a 16s.
Leicester,	13s. 6d.	.119	Derbyshire soft coal
Derby,	13s. 6d.	.119	do.
Nottingham,	13s. 6d.	.119	do.
London,	17s.	.154	Newcastle.
		$1,447	

Which gives an average of over eleven cents per bushel. If we take the average of coal, equal in quality to Pittsburgh, the average price at the great manufacturing cities of Birmingham, Manchester, Leeds and Sheffield, is from fourteen to fifteen cents per bushel. Twenty-six bushels and twenty-four pounds of our coal make a ton. I give twenty-six and a half bushels to the ton. The respective weights per cubic feet are:

Liverpool, - - - - - - - - - - - -	78.89
Newcastle, - - - - - - - - - - - -	78.54
Pittsburg, - - - - - - - - - - - -	78.37
Cannelton, Indiana, - - - - - - - -	79.54

according to Prof. Johnson's report. The advantage of the calculation, therefore, is against us. And yet, in ignorance of the facts, many of our men of capital and enterprise doubt whether we can enter into competition with English manufactures, because of the cheapness of English coal!

"Thickness and Depth of the Coal Seams.—*South Wales.*—The beds have been worked 2,100 feet below the surface, although generally it has not been found necessary to go deeper than 480 feet. There are twelve seams between three and five feet; eleven from eighteen inches to three feet, and several, which are not worked, from twelve to eighteen inches thick.

"*Whitehaven.*—The Howgill mine is 600 feet below the bed of the sea, and carried 3,000 feet from the shore.

"*Dunham.*—The most important colliery is the Montagu, three and a half miles above Newcastle. Of this, the Benwell main is four feet nine inches thick—three hundred and five feet deep. The Beaumont seam three feet four inches thick—four hundred and nine feet deep. Low main two feet eleven inches thick—two hundred and twenty-three feet deep. Low low main two feet ten inches thick—eight hundred and eighty-two feet deep. Of the superincumbent mass, three hundred and one feet is Whinstone and post; the first of which is so hard that angular fragments will cut glass; the latter is a hard kind of freestone suitable for grindstones.

"*Cumberland.*—'King's Pit,' near Whitehaven; one seam is twelve feet thick—seven hundred and twenty-six feet deep. Two seams two feet thick—

nine hundred feet deep. Three seams six feet one inch thick—one thousand two hundred and ninety-three feet deep.

"*Ashby.*—At a depth of four hundred and seventy-five feet, five beds of different qualities are worked, averaging about three feet in thickness.

"*Sheffield.*—The principal seams worked near Sheffield are: 1. Seam four feet thick—depth not stated. 2. Seam two feet three inches thick, and seventy-eight below the first. 3. Seam three feet nine inches thick—one hundred and ninety-eight feet below the first. 4. Seam four feet six inches thick—four hundred and ninety-eight feet below the first. 5. Seam five feet thick—one thousand and ninety-eight feet deep. 6. Seam six feet thick—depth not stated. Of these, the second seam is largely worked, and known as furnace coal. The third has seven lamina of different qualities. The fourth is, in working, separated into eight layers, the lowest portion being Cannel coal, and used exclusively in the Sheffield gas works. The fifth, or 'manor seam,' has fifteen layers, including two of soil. The sixth, or 'Sheffield bed,' has six or eight varieties, some abounding in iron pyrites.

"*Northumberland.*—The shallowest pit is one hundred and thirty-eight feet deep, and the lowest twelve hundred and eighty feet perpendicular; of which the shaft alone cost about $350,000.

"At Monkwearmouthshire, the boring commenced in 1826, and had reached, in 1835, as low as fifteen hundred and ninety feet, passing through but a single available seam, at a depth of fifteen hundred and seventy-eight feet; and, indeed, none other was looked for under eighteen hundred feet deep. In working this shaft about $500,000 had been expended!

"In the 'Alfred' pit, at Jarrow, there is a thirty horse steam engine, erected at a depth of seventy-eight feet below the surface, and used in raising the coals up a shaft which unites with the workings carried out two hundred and seventy feet deeper still. At this profound depth, another engine draws the coals up an inclined plane that lies coincident with the dip of the strata.

"At the 'Swan Banks' colliery, near Halifax, the 'hard band' coal seam two feet three inches thick, is four hundred and forty-two feet deep, and the 'soft bed' coal one foot five inches thick, is worked eight hundred and twelve feet below the surface.

"The foregoing are about the average value of the coal beds in England. The thickest seam is that called the 'Ten-Yard Vein,' near Dudley. This, however, as is the case in all very thick beds, is difficult to work. The coal is tender, the roof is not firm, and only about one-third of the coal can be taken out. Besides, thus far, no machinery has been found in detaching blocks of coal from the mass. Where the ordinary pick is insufficient, gunpowder is used, and, wherever this is required, Davy's safety lamp would be superfluous. The seams worked at the least expense, are from five to eight feet thick. Of the average depth and thickness of the coal in England, I have no precise data. It is safe, however, to esti-

mate the depth at between six hundred and seven hundred feet, and the thickness from three to three and a half feet.

"The cost of reaching and working these mines is enormous; cheap labor and capital only could sustain it. Where else but in England would a capitalist persevere for nine years, and expend half a million of dollars without any return, on the judgment of a 'coal viewer' or geologist?

"The labor and cost of raising the coal from such depths is but slight when compared with that required to drain and ventilate the mines. Drainage is sometimes effected by 'adits' or drifts. The Cornish adit, for example, extends its ramifications about 26,000 fathoms, and empties into Falmouth harbor. The adit of the Duke of Bridgewater's mines, at Worsley, is a prodigious work, about thirty miles long, and navigable for barges. But, generally, the water is taken from the mines by the use of the steam engine. For this purpose the 'South Hetton' colliery has three engines of one hundred horse power each, and one of three hundred horse power; of the latter, the beam contains eighty-one thousand eight hundred and forty pounds of iron, makes fifteen strokes per minute, and raises eight hundred pounds of water at each stroke. The cost of this engine was £10,000. And yet coal mines are often inundated, and sometimes thereby rendered useless.

"The process of ventilating the mines is complicated and costly, and so imperfect that the mines are never entirely safe from the deadly effects of the fire and choke damp. After the awful tragedies at the Pitt mines, it seems strange that man should risk a similar catastrophe, but, in England, life is as cheap as capital or labor.

"I cannot, without extending this paper to a great length, enumerate even all the important obstacles in the way of the English collier, but cannot omit reference to 'dikes.'

"'Dikes,' says Mr. Coneybeare, 'are an endless source of difficulty and expense to the coal owner, throwing the seams out of their level [at Clackmanshire 1,230 feet] and filling the mines with water and fire damp.' And yet, Prof. Buckland thanks God for so placing these 'faults;' 'for, without them,' says he, 'the mines could not be drained by the powers of the most approved machinery.'

"The statesmen of England attribute her great prosperity and power to her coal fields, and Parliaments have anxiously inquired of the surveyor and geolist whether the supply would last two or three thousand years longer. They may, in time, hear of our vast beds of the same mineral, of superior purity, without a 'fault;' which is found by drifts and not shafts; which require no artificial means of drainage or ventilation; in whose veins life is safe and labor not irksome; and which underlies a soil of unsurpassed fertility; and they may remember the fate of Thebes, Athens, and Rome, and reflect that no amount of capital, no preponderance of power can long sustain a city or State when competing with superior *natural* advantages elsewhere.

"*Nova Scotia.*—The Albion mines are in Pictou, on the northern side of Nova Scotia, and eight and a half miles distant from the town of the same name. The coal is transported the whole distance by railroad, or by the river barges. The strata are similar to those of Staffordshire. The Sydney and Bridgeport mines are on the eastern side of the island of Cape Breton. The coal in this field is similar in quality to that at Newcastle. Railroads are required here, and also steam 'tugs' to tow coal vessels in and out of the harbors. The shallowest pit described is one hundred and eighty feet deep; as the dip of the veins is rapid and towards the sea, the workings will continually increase in depth. The seams, perhaps, are not as thick as those of England, and, judging from the price at which the coal is sold in New England, the cost of working them is not less.

"Martin, in his 'Colonial Library,' states that all these mines are held by the 'General Mining Association' as tenants of the crown and the late Duke of York, with a capital of $2,000,000, chiefly invested in boats, machinery, and other means of carrying on its mining operations. The nearest and only great market for this coal is New England, where its price ranges from twenty to thirty cents per bushel, after paying an import duty of about forty-five cents per ton. Before I touch on the coal measures of the United States, I must ask space to make a few quotations from various writers on the importance and value of this mineral.

"'It cannot here be necessary to point out the many advantages which we derive from the possession of our coal mines, the sources of greater riches than ever issued from the mines of Peru, or from the diamond grounds at the base of the Neela Mulla mountains. But for our command of fuel, the inventions of Watt and Arkwright would have been of small account; our iron mines must long since have ceased to be worked, and nearly every important branch of manufacture which we now possess must have been rendered impracticable, or, at best, have been conduceed upon a comparatively insignificant scale.'—*Porter's Progress of the Nation.*

"'The ascent of Mount Blanc from Chamouni is considered, and with justice, as the most toilsome feat that a strong man can execute in two days. The combustion of two pounds of coal would place him on the summit.'—*Sir J. F. W. Hershel.*

"'The amount of work now done by machinery, moved by steam, in England has been supposed to be equivalent to that of between three and four hundred millions of men by direct labor.'

"Dr. Thompson says that in the coal fields on the north and northwest of Birmingham, the loss in mining, owing to the tender nature of the substance itself, and the comparatively trifling demand for small coal, amounts to about two-thirds of he entire steam. In allusion to this statement, and the efforts of a celebrated philosopher to economize the application of fuel, Mr. Tredgold exclaims: "'The waste, which Count Rumford lamented so much, dwindles to nothing in comparison with the wholesale destruction of a valuable material. Are you a manufac-

turer? Look around and see what generates the power which enables you to compete with other nations. Are you a philanthropist? Consider that a substance is destroyed which would add comfort to millions of your fellow creatures; consider the risk at which it is procured; the number of lives that are lost by explosions, and the misery these catastrophes create. Surely, some means of rendering that portion useful, which is now wasted, may be devised.'

"'In a work, lately published by a Spaniard, there is a comparison between the produce of the gold and silver mines in America and the coal mines of England, in which the author exhibits a balance in favor of the latter of no less than 229,-500,000 francs annually.'

"'Pennsylvania realizes from her coal mines an annual income of four and a half millions, and Great Britain of one hundred and ninety-two millions of dollars.' —*Hitchcock's Geology, Mass.* 1841.

"My last quotation is from the splendid speech of Mr. Webster.

"'It [steam] is on the rivers, and the boatman may repose on his oars; it is in the highways, and begins to exert itself along the courses of land conveyances; it is at the bottom of mines, a thousand (he might have said 1,800) feet below the earth's surface; it is in the mill, and in the workshops of the trades. It rows, it pumps, it excavates, it carries, it draws, it lifts, it hammers, it weaves, it spins, it prints."

The writer says of the great Illinois coal field, that "in the opinion of geologists, the whole field is what is termed a 'basin,' and, on the Ohio, is lowest about Henderson. Probably there are only two strata that are worth working. The lower, in geological position, is seen at Cannelton and Trade Water; the upper at Bon Harbor; each of these, at different points, is from 3 to 10 feet in thickness.

"On the eastern side the dip is westwardly about fifty feet in a mile; on the western side the dip is estwardly, but how rapid is not known. Near the Mississippi river the lower strata is said to be very sulphurious.

"The positions where it has been worked, and where the coal appears to be of an excellent quality and convenient thickness, are at Cannelton, and on the Wabash and White rivers, in Indiana; about one hundred miles up the Green river, at Bon Harbor, and on the Tradewater river, in Kentucky; and on the Saline and Big Muddy rivers in Illinois."

ART. VII.—HOPS.

THE QUANTITY CONSUMED IN ST. LOUIS. — THE CULTIVATION OF HOPS IN THE WEST.

WE have bestowed much labor in ascertaining the quantity of hops consumed by the breweries in St. Louis, and have learned from the proprietors of these establishments that they purchased last year, 71,700 pounds. We have not been able to ascertain the quantity used by the bakers, distillers, &c., but we imagine

that there can be little less than 100,000 pounds of hops annually consumed in this city, and the demand is rapidly increasing.

We have also ascertained that much the larger portion of these hops are of eastern growth; and to this fact we desire to call the attention of our agricultural readers.

In a country like this, where over-production is so liable to occur in every staple, it would seem extremely absurd that we should continue to import from a great distance, and at great expense, an article which can be as easily produced here as in any part of the world.

We learn from the brewers that they consider the properties of the western hops superior to the eastern; but, owing to the manner of gathering and preparing them for market, the eastern article is preferred. We perceive from the St. Louis Price Current of January 15th, that prime eastern hops were worth from 14 to 15 cents, and western do. 11 to 14 cents. This difference of price is doubtless owing to the cause above mentioned.

If the New England farmer can afford to produce hops on land of many times the market value of land in the west, and where one bushel of corn is worth three times as much money; and, in addition to this, transport the article more than two thousand miles by ocean and river navigation, it would seem to place the matter beyond doubt, that the growth of hops must be highly profitable in Missouri. It is true that the western market is limited, and might be readily overstocked; but why not produce for exportation? It seems to us, upon comparing the elements that enter into the cost of production in the two countries, that we ought to supply New England with hops, rather than to import the article from there for our own consumption.

We profess to know nothing of the culture, or of the manner of preparing hops for use. We therefore invite our agricultural readers to inquire into the subject, and to afford us such practical information in regard to the culture and preparation of the article for use, as they may possess.

ART. VIII.—MANUFACTURES IN ST. LOUIS.

Grimsley's dragoon, or military saddle-tree.

The nature of this invention consists of an improvement upon the pommel, and cantle made use of in the construction of the French Hussar, or old Dragoon Regulation Saddle-tree, and in the combination, without metalic fastening, of the French Hussar or Dragoon Regulation style of pommel, and cantle with winding side bars, of such a form, and arranged in such a manner, that they will bear equally and uniformly on the back of a horse or mule, thereby superseding the

necessity of a pad. The timber of which this saddle-tree is constructed, is ash, beech or maple, and it is fastened together by means of a raw hide covering. The front of the pommel is shaved to a level surface, with a slight curvature at the upper end, giving the head an inclination to the front, while on the inside it is worked off each way from the centre, giving it a convex form. The cantle is worked out each way from the centre, on the inside, bringing it to a concave form, and affording the rider an upright posture, and an easy seat in the saddle. From two and a half to three inches from the upper end of the cantle it is curved to the rear, while the rear surface of the same is brought to a convex form.

The side bars, the most important part of the tree, are nineteen to twenty inches long, and are made from timber in the rough state, from three to four inches thick. The two ends where the pommel and cantle are joined to the same, are shaved to a smooth surface. The space between is so formed as to fit the seat of the rider, and afford ease to, and a close application of, the inside muscles of the thighs to the saddle, and the sides of the horse. The under side of the side bars are worked off, and so formed as to fit the back of a horse below the great leaders, and a sufficiently winding and oval surface is given to them, to insure a uniform, even pressure on the back, from front to rear. They are from five to seven inches wide, and from one-fourth to one inch in thickness, An aperture is made through the upper end of the pommel, through which a strap passes, to fasten the coat or other luggage of the Dragoon. There is also an aperture in the upper end of the cantle, to which the valise is suspended, which holds it above the back of the horse, and prevents it from chafing or bruising his loins. From all we can learn of the construction and form of this saddle-tree, it combines the strength and durability of the Spanish, the grace and elegance of the French, and the handsome proportions and finish given to it by the inventor in this city. We learn that the saddles made on these saddle-trees were first constructed by Mr. Grimsley some two years and a half since, and have, since that time, been introduced into every arm of the mounted service of the country. Its great celebrity, and complete adaptation to the purposes for which it was intended, caused the Quarter Master General of the United States army to order samples to be forwarded to Washington, where a board of officers, of high rank and great practical experience, was ordered to convene to decide upon the merits of the equipments of Mr. G., and other samples which were submitted for their inspection. The result of their deliberations was the adoption of every part of the saddle offered by Mr. Grimsley, and of the whole of his equipments except the bridle bit, which was submitted by Lieut. Col. May, of the 2d Dragoons. The improvements in this article are of essential service to the country, and the one under consideration has been tested thoroughly by some of the oldest and ablest officers known to the Dragoon service. Amongst the samples which were in the office and under consideration, was the Spanish, French, the Ringgold, and Sam Walker saddles, with several other specimens, but none were considered equal to the sample from

St. Louis. It was, therefore, adopted, and is now the regular army saddle for the mounted service of the United States.

The business capacity and enterprise of Col. Grimsley might well place him at the head of his profession in this, or any other country. His establishment on Main street, in this city, in regard to both extent and arrangement, is unequalled by any thing of the kind that we have ever visited.

Here he gives constant employment to from sixty to seventy hands, and so complete is his supervision, that we have never heard of a bad job that was turned out from his establishment. And more than this, his enterprise is not limited to the building up of his own establishment merely, but acting upon the true principles of political economy, he delights to encourage his neighbors, and employs St. Louis mechanics to manufacture the stirrup irons, bridle bits, and other hardware used in his business. Such individuals well deserve the highest degree of prosperity that talent and industry can impart.

BLOW'S WHITE LEAD AND OIL FACTORY.

The following statement in relation to this extensive and flourishing establishment, has been furnished by Mr. Henry T. Blow, the enterprising proprietor.

The establishment is situated at the corner of Clark Avenue and Tenth Street, and fronts on the latter one hundred and thirty-five feet.

The machinery is propelled by a steam engine of thirty horse power.

There is consumed in this establishment annually

16,000 pigs of lead,
98,000 bushels of flax seed and castor beans,
2,000 barrels of vinegar,

and fuel, including coal, wood, bean hulls, &c., equal to

40,000 bushels of good coal.

The establishment gives employment to sixty-five hands, and produces annually about 50,000 kegs of white lead, 4,000 barrels of oil, and 350 casks of red lead and lytharge, and pays for labor, fuel and insurance, $22,000, and for stock generally, from $140,000 to $175,000.

The work at the establishment is carried on both day and night for six days in the week, and has seldom stopped for the last three years, except to repair accidents, and for the holydays. The oil and lead manufactured at this establishment is sold in almost every city in the Union.

"The St. Louis Chemical Works" carried on by Mr. Samuel Cuthbert, produced last year about 20,000 kegs of white lead, and has machinery and capacity of buildings sufficient to turn out, perhaps three times that quantity.

BREWERIES.

This is a branch of business which has greatly increased within the last two or three years. We have now in the city sixteen breweries; which, according

to information obtained from the proprietors, consumed last year 103,100 bushels of barley, and about 71,700 pounds of hops.* The following table will show the amount consumed by each establishment:

Names.	No bu. Barley.	No. lbs. Hops.	Names.	No. bu. Barley.	No. lbs. Hops.
St. Louis,	20,000	15,000	City,	14,000	8,000
Western,	6,000	4,000	Union,	9,000	6,000
Fulton,	14,000	6,000	Phœnix,	8,000	5,600
Geo. Busch,	8,000	2,500	Washington,	7,000	5,000
Camp Spring,	8,500	6,000	Rocky Branch,	4,000	1,500
Mound,	6,000	6,000	Franklin,	1,200	600
National,	2,500	2,000	Oregon,	500	1,200
Lafayette,	2,500	1,500	Eagle,	2,000	800
	67,500	43,000		45,700	28,700

* A small quantity of hops purchased was sold for other purposes.

DISTILLERIES.

There are three distilleries in the city, which, according to information obtained from the proprietors, consume in the aggregate about six hundred and eighty bushels of grain per diem, or over two hundred thousand bushels per annum.

Mr. Richard W. Ulrici consumes at his establishment two thousand bushels of corn per week, and employs twenty hands, and makes two hundred barrels of whisky per week, besides feeding two hundred and fifty head of cattle. He has made arrangements to feed and fatten four thousand head of hogs, which he desires to purchase during the season, to which fact he calls the attention of those who may have stock for sale.

W. C. Jackson & Co. use at the distillery about two hundred bushels of grain per day; and the Rocky Branch Distillery use about one hundred and fifty bushels. There is also an extensive distillery on the opposite side of the river.

ART. IX.—ST. LOUIS AND CINCINNATI RAILROAD.

The following preamble and resolutions adopted by a convention held not long since at Indianopolis, Indiana, show the laudable interest which our eastern neighbors take in this important work:

"WHEREAS, public attention has of late been directed to the importance of constructing a railway between the city of St. Louis on the Mississippi river and Cincinnati on the Ohio, whereby in course of time a continuous railway communication will be formed with the Eastern Atlantic cities; and whereas, the right of way for such purpose has already been granted by the States of Ohio and Indiana under liberal charters passed by the respective Legislatures; and whereas, the Terre Haute and Richmond Railroad Company, created under the charter of the last Legislature of Indiana, has already been organized, be it

"*Resolved*, That this Convention does not doubt the practicability and ultimate

completion of this great public improvement, passing, as it does, through one of the richest agricultural regions in the world—connecting the commerce of the East and West—bringing into the immediate proximity the chief commercial cities of the Union, and promising the richest returns for their investment of capital.

"*Resolved*, That a committee of seven, (of whom the President of this Convention shall be one,) be appointed by the chair to prepare and publish an address setting forth to the country the character, importance and practicability of this work — the commercial and agricultural resources of the country through which it passes — the great advantages it will secure to the country and to capitalists, and such other matters connected with it as may be of general importance, and that the same be prepared and published at as early a period as possible after the adjournment of this convention."

ART. X.—PRODUCT OF THE LAKE SUPERIOR COPPER MINES.

Colonel D. R, McNair, as we learn from the "*Lake Superior News*," the organ of the mining interest in that region, has made up his report to the 30th of September, 1847, which exhibits returns of ores and metals raised, and shipments out of the district for smelting, from the commencement of operations, as follows:

Companies.	Ores and Metals raised. Pounds.	Am't. Shipped. Pounds.
Lake Superior Company,	1,114,841	34,441
Eagle Harbor Company,	321,000	81,164
Copper Falls Company,	317,050	15,263
Pittsburgh and Boston Copper Harbor Co.,	7,283,340	1,497,481
Northwest Company,	190,000	7,264
Lac La Belle Company,	200,000	1,329
Suffolk Company,	300,000	383
Algonquin Company,	120,000	11,135
Mendenhall Company,	80,000	4,049
All others making reports,	1,327,969	40,296
Total,	10,244,200	1,693,805

Leaving the balance of 8,550,395 lbs. of mineral to be smelted in the mining district.

It is further stated in the "Lake Superior News," that "the receipts, since the transfer of the charge of these lands from the War Department to the Treasury Department, exceed, by a very considerable amount, every expense attendant upon their management and the collection of rents; and it is computed that, with what will be raised by the 30th September, 1848, at the rates of this year, the rents will amount to some $25,000 over and above expenses. There are many companies who have commenced mining, with good shows of mineral and prospects of success, who are not as yet sufficiently advanced to make returns; and a great many who were doing well have turned their forces to building, opening of roads, clearing the land, and raising potatoes, until they could erect smelting works, four of which are going up, and will be in operation the ensuing summer—one on the Ontonagon, one at Eagle River, one at Dead River, and one at Isle Royal. It should also be mentioned that explorations have been carried on extensively, with the anticipation of taking up these lands when they come into market, and that the discoveries surpass all previous anticipations. Gen. E. J. Roberts, assistant agent United States mineral lands, will, we understand, make his head quarters for the winter at Eagle River, the Ontonagon, or Fort Wilkins, where the business of the agency will be transacted until the re-opening of navigation.

ART. XI.—COMMERCE OF ST. LOUIS.

We are indebted to the St. Louis Price Current for the following statistical tables of the commerce of St. Louis. The editor of this valuable paper is entitled to much credit for his industry and enterprise, in collecting and collating the facts connected with the commerce of the west.

IMPORTS INTO ST. LOUIS FOR FIVE YEARS,

Commencing January 1, 1843.

ARTICLES.	1847.	1846.	1845.	1844.	1843.
Bacon ..... casks	12,472	12,631	8,620	11,208	15,555
Beef ..... bbls	10,254	12,346	7,029	4,172	11,283
Bagging ..... pieces	1,432	3,299	6.036	4,594	3,270
Bale Rope ..... coils	10,798	5,802	9,229	14,316	9,622
Barley ..... sacks	35,527	13,212	15,128	7,005	3,114
Buffalo Robes ..... bales	7,782	5,976	3,567	3,598	7,787
Beeswax ..... bbls	759	532	531	577	73
Beeswax ..... sacks	798	827	599	928	832
Corn ..... sacks	478,449	352,381	44,341	25.270	32,707
Coffee ..... bags	77,767	60,450	46,802	43,476	40,297
Flour ..... bbls	435,019	223,670	132,196	96,203	80,479
Fish ..... bbls	3,484	1,572	4,006	1.970	1,386
Fish ..... kits	2,734	2,620	1,492	1,642	1,758
Hemp ..... bales	81,525	34,738	30,985	62,732	37,553
Hides ..... ——	71,877	84.980	72,918	42,802	45,814
Iron ..... bundles	15,695	22,651	13,238	11.647	10,314
Iron ..... bars	91,513	63.712	59,697	57,316	26,855
Iron ..... tons	17,016	1,716	964	880	1,089
Lead ..... pigs	767 656	763.489	757.908	621,900	584,131
Cotton Yarn ..... bxs, bgs	15,147	17,726	15,322	13,716	11,347
Lard ..... bbls	31,005	24,542	8.502	15,792	13,844
Lard ..... kegs	12,247	19,351	5,362	19,709	24,337
Liquors ..... casks	3,192	3,122	2.638	1,752	1,505
Molasses ..... bbls	21,554	16,774	11,876	12,068	4,139
Nails ..... kegs	22,789	33,303	14,831	23,183	26,895
Oats ..... sacks	101,203	59,620	21,969	21,916	14,212
Oil, Lard ..... bbls	478	274	292	688	1,154
Oil, Linseed ..... bbls	485	866	810	449	625
Oil, Castor ..... bbls	332	230	48	97	273
Oil, Sperm ..... casks	186	169	169	81	190
Pork ..... bbls	45.922	15.613	16,199	46,836	19,805
Pig Metal ..... tons	2,263	2,504	1,303	1,110	2,041
Rice ..... tierces	762	8,666	708	518	341
Sugar ..... hhds	12,661	13,898	10,237	10,738	10,470
Sugar ..... bbls	4,083	4,917	3,193	2,679	1,953
Sugar ..... bxs	15,028	1,090	1,053	1,607	624
Salt, T. I. ..... sacks	22 983	15.823	20,278	49,683	34,569
Salt, G. A. ..... sacks	92,809	107,581	82,520	86,001	65,574
Salt, Kanawha ..... bbls	44.380	62,189	21,684	14,277	37,350
Salt, L. B. ..... sacks	17,632	28,478	20,387	17,454	30,300
Spirits Turpentine ..... bbls	619	740	317	419	535
Skins, deer ..... bales	2,697	1,609	1,862	1,283	1,103
Seed, flax ..... bbls	4,992	4,081	2,045	4,273	3,629
Tobacco ..... hhds	10,935	8.767	12,856	10,013	20,668
Tobacco ..... bxs	9,592	6.676	7,372	4,823	6,307
Tallow ..... bbls	2,217	1,754	1,705	5.331	974
Tar ..... bbls and kegs	5,656	5,235	4,942	5,141	3,455
Wool ..... bales	2,107	1,903	1,899	1,377	——
Whisky ..... bbls	30.247	29,832	29,445	24 147	18,605
Wheat ..... bbls	97,123	81.350	77,150	54.887	70,777
Wheat ..... sacks	1,222,433	743,491	382,323	257,632	131,427

EXPORTS FROM ST. LOUIS, FOR FIVE YEARS,

Commencing January 1, 1843.

ARTICLES.		1847.	1846.	1845.	1844.	1843.
Bacon, ass'd,	casks	14,085	13,641	7,628	14,953	17,676
Bacon,	bbls	4,092	4,916	7,788	6,207	1,470
Bacon, bulk,	tons	675	569	148	292	302
Beef,	bbls	12,798	20,113	5,324	5,694	11,288
Bagging,	pieces	3,363	4,784	8,182	4,248	5,007
Bale Rope,	coils	12,632	10,016	12,896	22,431	15,490
Beeswax,	bbls	624	913	1,219	1,576	1,145
Beans,	bbls	4,490	4,408	2,170	1,448	1,327
Buffalo Robes,	bales	3,879	3,630	2,716	7,404	8,141
Corn,	sacks	395,683	243,026	23,478	25,191	21,605
Flour,	bbls	448,614	359,858	202,790	130,274	123,977
Hides,	——	73,586	44,962	50,828	57,220	38,175
Hemp,	bales	65,752	31,352	29,604	52,654	28,704
Lead,	pigs	591,791	663,505	637,033	553,719	538,762
Lead, bar,	boxes	3,136	2,932	1,850	4,442	2,624
Lard,	bbls	39,513	26,412	13,318	25,127	22,187
Lard,	kegs	21,344	32,729	15,691	36,410	27,790
Oats,	sacks	16,957	41,176	8,434	7,889	7,396
Oil, Linseed,	bbls	1,007	522	——	40	526
Oil, Castor,	bbls	933	1,269	1,231	1,458	1,493
Oil, Lard,	bbls	——	619	733	3,337	3,420
Pork,	bbls	56,467	62,820	22,330	50,225	35,211
Pork, bulk,	tons	661	805	203	498	183
Rye,	sacks	2,250	1,167	1,750	4,188	3,120
Shot,	kegs	2,506	4,122	4,216	3,070	3,393
Skins, deer,	packs	3,700	2,162	2,687	2,726	1,034
Seed, flax,	tierces	660	1,118	1,306	2,103	2,432
Tobacco,	hhds	9,881	8,450	11,284	9,500	19,730
Tobacco, manufactured,	boxes	4,841	6,183	7,832	8,844	7,734
Tallow,	bbls	2,092	5,955	1,316	2,313	1,380
Wheat,	bbls	10,318	16,231	29,796	16,864	20,691
Wheat,	sacks	640,239	217,319	68,634	60,894	48,331
Wool,	bales	1,414	1,335	1,326	1,084	311

TOBACCO.

Comparative Receipts, Sales, and Direct Shipments, for the last five years.

YEAR.	Total Receipts.	Sales Here.	Shipped Direct.
1843	20,668	6,847	13,822
1844	10,013	4,447	5,566
1845	12,856	6.290	6,566
1846	8,767	3,898	4,869
1847	10,935	5,089	5,846

COMPARATIVE MONTHLY PRICES OF TOBACCO,

For the last four years.

MONTHS.	1847.	1846.	1845.	1844.
January,	$3 00@3 25	$4 00@4 25	$3 00@3 25	$3 00@3 50
February	3 00@3 25	3 75@4 00	3 00@3 25	3 00@3 50
March	3 00@3 25	3 75@4 00	3 00@3 25	3 00@3 50
April	3 00@3 25	3 75@4 00	3 00@3 25	2 50@3 00
May	3 00@3 25	3 75@4 00	3 25@3 50	2 75@3 00
June	3 50@4 00	4 00@4 25	4 00@4 25	3 75@4 00
July	3 50@4 00	3 75@4 00	4 25@4 50	3 75@4 00
August	3 75@4 25	3 75@4 00	4 25@4 50	3 75@4 00
September	3 50@4 00	3 75@4 00	4 25@4 50	3 50@3 75
October	3 75@4 25	3 50@3 75	4 25@4 50	3 50@3 75
November	3 75@4 25	3 25@3 50	4 25@4 50	3 00@3 25
December	3 75@4 25	3 00@3 25	4 25@4 50	3 00@3 25

COMPARATIVE MONTHLY PRICES OF FLOUR,

For the last four years.

MONTHS.	1847.	1846.	1845.	1844.
January	$3 62@3 75	$4 37½@4 50	$3 62½@3 70	$3 75 @4 00
February	4 62@4 75	4 00 @4 12½	3 60 @3 62½	3 75 @4 00
March	4 37@4 50	3 87½@4 00	3 60 @3 62½	3 95 @4 12½
April	4 62@4 75	3 50 @3 62½	3 45 @3 50	3 70 @3 75
May	4 87@5 00	2 95 @3 00	3 65 @3 70	3 70 @3 75
June	6 25@6 50	3 05 @3 10	3 65 @3 70	3 50 @3 55
July	4 50@4 62	2 00 @2 25	3 70 @3 75	3 70 @3 75
August	4 62@4 75	2 50 @2 55	3 45 @3 50	3 75 @4 00
September	3 87@4 00	2 87½@3 00	3 00 @3 06½	3 80 @3 90
October	4 30@4 37	3 75 @3 80	3 12½@3 25	3 87½@4 00
November	4 50@4 62	3 80 @3 87½	3 70 @3 75	3 56 @3 00
December	5 00@5 25	3 75 @3 80	5 75 @6 00	3 75 @4 00

COMPARATIVE MONTHLY PRICES OF WHEAT,

For the last four years.

MONTHS.	1847.	1846.	1845.	1844.
January	Cts. 50@ 62	Cts. 70 @75	Cts. 68 @70	Cts. 65@70
February	80@ 85	65 @68	60 @65	65@70
March	65@ 75	63 @66	68 @70	75@80
April	80@ 85	62½@65	65 @67	70@75
May	90@ 95	63 @65	68 @70	70@72
June	110@125	50 @52	68 @70	60@62½
July	80@ 90	38 @40	70 @73	50@56
August	75@ 85	48 @50	50 @53	60@65
September	70@ 80	50 @53	54 @56	65@68
October	80@ 87	60 @63	62½@65	60@62½
November	75@ 85	57 @59	75 @80	70@73
December	87@100	58 @60	85 @90	67@70

COMPARATIVE MONTHLY PRICES OF CORN,

For the last four years.

MONTHS.	1847.	1846.	1845.	1844.
January	Cts. 33@35	Cts. 26@28	Cts. 28@30	Cts. 24@26
February	35@36	24@26	28@30	25@26
March	45@50	25@26	28@30	25@26
April	45@50	21@23	29@31	25@26
May	33@34	20@21	27@28	26@28
June	43@45	19@20	27@28	26@28
July	33@35	16@18	29@30	33@35
August	33@35	17@19	26@28	28@31
September	31@33	23@25	24@26	28@30
October	35@37	30@33	24@26	28@30
November	28@30	23@25	24@26	33@35
December	28@31	28@30	30@35	30@32

COMPARATIVE MONTHLY PRICES OF HEMP,

For the last four years.

MONTHS.	1847.	1846	1845.	1844.
January	$ 50@ 60	$65@68	$58@60	$70@75
February	55@ 65	58@60	58@60	70@75
March	60@ 70	58@60	58@60	76@80
April	85@ 95	52@55	62@65	73@75
May	75@ 85	48@50	68@70	70@73
June	65@ 72	48@50	68@70	60@65
July	85@ 95	46@48	70@75	58@60
August	90@100	48@50	60@70	65@70
September	90@100	44@46	65@68	70@72
October	105@115	46@48	60@65	65@68
November	105@120	48@50	65@68	63@65
December	100@110	56@60	62@65	60@62

COMPARATIVE MONTHLY PRICES OF LEAD,

For the last four years.

MONTHS.	1847.	1846.	1845.	1844.
January	$3 87@4 00	$3 7 @3 75	$3 25@3 20	$3 00@3 03
February	3 87@4 00	3 70@3 75	3 32@3 35	3 00@3 03
March	3 80@3 85	3 40@3 45	3 10@3 12½	2 85@2 87½
April	3 35@3 40	3 20@3 25	3 08@3 10	2 75@2 78
May	3 30@3 35	2 90@2 95	3 00@3 03	2 85@2 87½
June	3 45@3 50	3 30@3 35	2 95@3 00	3 00@3 02
July	3 40@3 45	3 25@3 30	3 32@3 35	2 90@2 92
August	3 35@3 40	3 15@3 20	3 25@3 30	2 93@2 95
September	3 65@3 70	3 25@3 30	3 45@3 47	3 00@3 05
October	3 87@4 00	3 48@3 50	3 68@3 70	3 10@3 12
November	4 05@4 10	3 70@3 75	3 80@3 85	3 45@3 50
December	4 00@4 05	3 80@3 85	4 00@4 03	3 25@3 37½

Gross amount of Receipts at the Custom House at St. Louis, from January 1st, 1843, to January 1st, 1848.

From January 1st, 1843, to January 1st, 1844,	$5,554 79
From January 1st, 1844, to January 1st, 1845,	16,181 11
From January 1st, 1845, to January 1st, 1846,	16,312 11
From January 1st, 1846, to January 1st, 1847,	29,781 69
From January 1st, 1847, to January 1st, 1848,	73,908 10

ART. XII.—COMMERCE OF NEW ORLEANS.

IMPORTS INTO NEW ORLEANS FROM THE INTERIOR,

From 1st September, 1846 and 1847.

ARTICLES.		This season	Last season	ARTICLES.		This season	Last season
Bacon, ass'd, hhds, csks, bbls		4784	11005	Corn,	sacks & bbls	168163	419736
Bacon Hams, hhds & tierces		2657	4025	Flour,	bbls	339487	399257
Bacon, in bulk,	lbs	18000	206300	Hemp,	bales	7545	6508
Bagging,	pieces	21545	12553	Lard,	kegs	78357	72852
Bale Rope,	coils	22214	7703	Lard,	hhds & bbls	17465	14153
Beef,	tierces and bbls	28024	12735	Lead, pig,	pigs	204500	186937
Butter,	kegs and firkins	15521	20064	Oats,	bbls & sacks	117657	152359
COTTON.	Louisiana & Miss., bales	203180	201138	Pork,	hhds & bbls	58272	41453
	Lake,	1696	713	Pork, in bulk,	lbs	2[illegible]9760	1030[illegible]0
	N. Alabama & Tennessee	26633	60059	Sugar,	hhds	30645	25956
	Arkansas,	12030	9218	Tobacco,	hhds	10370	3985
	Mobile,	663	3257	Wheat,	bbls & sacks	20819	42975
	Florida,	593	758	Whisky,	bbls	39794	36249
	Texas,	1557	292				

COMPARATIVE ARRIVALS, EXPORTS AND STOCKS OF COTTON AND TOBACCO, AT NEW ORLEANS, FOR TEN YEARS,

From September 1st to August 31st.

YEARS.	COTTON—BALES.			TOBACCO—HHDS.		
	Arrivals.	Exports.	Stocks.	Arrivals.	Exports.	Stocks.
1846-47	740669	724508	23493	55588	50376	22336
1845-46	1053633	1054857	6332	72896	62045	17924
1844-45	979238	981616	7556	71493	68579	7673
1843-44	910854	895375	12934	82435	81249	4859
1842-43	1089642	1088870	4700	92509	89891	4873
1841-42	749155	749267	4428	67555	68[illegible]58	2255
1840-41	822870	821288	14190	53170	54667	2758
1839-40	954445	949329	17867	43827	40436	4409
1838-39	578514	579179	10308	28153	30780	1234
1837-38	742720	738313	9570	37588	35555	3834

IMPORTS FROM THE INTERIOR, INTO NEW ORLEANS, FOR TEN YEARS,

Commencing 1st September and ending 31st August, in each year.

ARTICLES.		1847.	1846.	1845.	1844.	1843.	1842.	1841.	1840.	1839.	1838.
Bacon, assorted,	casks	36932	25213	12892	19563	16508	13505	11231	7350	13738	11715
Bacon Hams,	casks	14518	12052	8358	19470	13588	9220	6111	4412	6249	5565
Bacon, in bulk,	lbs	425163	492700	350000	1203821	1453798	1288109	259305	1117987	1501900	985250
Bagging, Western,	pieces	60982	96601	111324	106216	89721	60307	70976	66898	49697	45364
Bale Rope, Western,	coils	56201	56678	76640	83684	80932	63307	65613	47970	62862	61005
Butter,	kegs and firkins	51384	44172	30319	18531	18530	11791	14074	10429	7557	11967
Butter,	bbls	572	1491	396	560	894	254	693	790	429	279
Beef,	bbls & tierces	32735	62231	32074	49363	17549	17455	33262	10843	10777	6153
COTTON, Louisiana & Miss.,	bales	453842	765315	658244	627769	824015	583328	677343	747894	469231	560406
COTTON, Lake,	bales	4356	1276	19533	13234	14250	8967	5153	14960	2156	13836
COTTON, N. Ala. & Tenn.,	bales	211502	222677	198246	169234	191410	118629	118122	155166	73347	124539
COTTON, Arkansas,	bales	35279	34576	23103	21835	30511	16731	11149	13767	7003	11969
COTTON, Mobile,	bales	16379	6356	12123	47596	10687	4565	5881	15649	16768	22301
COTTON, Florida,	bales	16666	5854	12930	12916	3381	2841	731	2727	1080	5437
COTTON, Texas,	bales	2345	4249	26159	18170	15326	5101	4981	3982	2929	3232
Corn, in ears,	bbls	619756	358573	139686	165354	255058	246675	168050	152965	161918	270924
Corn, shelled,	sacks	2386510	1166120	391964	366052	427552	338709	268557	278358	338795	177751
Flour,	bbls	1617675	837985	533312	502507	621175	436688	496194	482523	434954	320208
Hemp,	bundles	60238	30980	46274	33062	14873	1211	450	500	4044	450
Lard,	bbls	117077	107639	60078	119717	107839	18207	9672	5007	8620	3737
Lard,	kegs	275076	334969	246114	373341	307871	366694	311710	177303	218357	224388
Lead, pig,	pigs	650129	785394	752125	639269	571949	472556	434467	307397	309528	294448
Oats,	bbls & sacks	558337	269386	144262	130432	120430	63281	54250	42855	35708	25514
Pork,	bbls	302170	309601	216960	412928	201643	244442	216974	120938	166071	139463
Pork,	bbls	9452	9988	4741	8500	2371	946	763	1067	1160	1523
Pork, in bulk,	lbs	8450700	9740752	4079600	7792000	6817750	4051800	9744220	5099857	7192156	3474756
Tallow,	bbls	6658	8255	7828	7323	6995	5071	937	200	746	135
Tobacco, Leaf,	hhds	55658	72896	71493	82435	92519	67555	53170	43827	28153	37588
Whisky,	bbls	126553	117104	97651	86947	83597	63345	73873	55857	29353	51580
Wheat,	bbls and sacks	823649	403736	61659	86014	118248	134856	2621	63018	17250	2027

DIRECT IMPORTS OF COFFEE, SUGAR AND SALT,

For three years, from September 1 to August 31.

ARTICLES.		1846-47.	1845-46.	1844-45.
Coffee, Havana,	bags	43931	10899	4094
Coffee, Rio,	bags	205111	215031	167669
Sugar, Havana,	boxes	45889	5442	3473
Salt, Liverpool,	sacks	344852	259481	361486
Salt, Turk's Island, &c.,	bushel	194431	110849	518407

Value of Products from the Interior, for four years.

Total estimated value in 1843-44, - - - - - -	$60,094,716
Total estimated value in 1844-45, - - - - - -	57,199,122
Total estimated value in 1845-46, - - - - - -	77,193,564
Total estimated value in 1846-47, - - - - - -	90,033,256

DIRECT IMPORTS OF FOREIGN MERCHANDIZE INTO N. ORLEANS,

From 1st September, to 25th December, in 1847 and 1846.

ARTICLES.		Past 3 days.	Previously.	Last season.
Coffee—Cuba, &c.,	bags	44	1684	6942
Coffee—Rio,	bags	—	66527	16335
Sugar—Havana,	boxes	—	3686	3444
Sugar—Havana,	hhds	—	30	—
Salt—Liverpool,	sacks	—	78935	101075
Salt—Turk's Island, &c.,	bushel	—	201422	69230

IMPORTS OF SPECIE INTO NEW ORLEANS,

From 1st September to 25th December, in 1847 and 1846.

This week, - - - - - - - - - - - -	$2,000
Previously, - - - - - - - - - - - - -	729,808
Total to date this season, - - - -	$731,808
Total to date last season, - - - -	892,298

EXPORTS FROM NEW ORLEANS,

From 1st September, to 25th December, 1847—and same time 1846.

SUGAR AND MOLASSES.

DESTINATION.	SUGAR.		MOLASSES.	
	Hdds.	Bbls.	Hhds.	Bbls.
New York,	5382	2	147	9071
Philadelphia,	3212	130	000	2573
Norfolk, Rich. & Pe'g,	1452	3	000	1758
Charleston,	722	63	000	1982
Baltimore,	2442	00	000	3903
Boston,	483	32	200	2554
Savannah,	44	00	000	501
Providence, Bristol, &c.,	00	00	000	000
Newport,	00	00	000	000
New Haven,	00	00	000	000
Alexandria & Georget'n,	230	00	000	112
Portsmouth,	000	00	000	000
Mobile,	1120	300	000	1150
Apalachicola,	268	32	000	268
Pensacola,	25	00	000	105
Other coastw. Ports,	35	15	000	70
Great Britain,	00	00	000	00
*TOTAL—	15418	577	347	24047
Same time last year,	13671	713	64	14592
Same year before,	15284	1174	47	16991

*Including Exports from Franklin, Louisiana, to December 1st.

COTTON BALES.

WHITHER EXPORTED.	P'st 3 d'ys	Prev'usly	Total.	Last sea'n
Liverpool,	1788	72122		55637
London,	00	00		00
Glasgow, Greenock, &c.,	00	3461		2132
Cowes, Falmouth, &c.,	00	4044		3089
Belfast, Cork, &c.,	00	00		00
Total to Great Britain,	1788	79627	81415	60858
Havre,	4586	40118		19951
Bordeaux,	00	610		67
Marseilles,	00	2664		2971
Nantz, Rouen, &c.,	00	1538		345
Total to France,	4586	44930	49516	23334
Gottenburg, &c.,	00	00		00
Amsterdam and Rotterdam,	00	00		00
Bremen,	249	1287		162
Antwerp,	00	7382		150
Hamburg,	2622	00		00
Stockholm,	00	00		00
St. Petersburg,	00	00		00
Total North of Europe,	2871	8669	11540	312
Gibraltar, &c.,	00	00		00
Havana and Spain,	2384	8168		7761
Mexico, &c.,	635	3038		1129
Genoa, Trieste, &c.,	800	14142		10114
Canton, (China,)	00	00		00
Total other Foreign ports,	3819	25348	29167	19004
New York,	516	16145		12428
Boston,	3880	23411		13167
Providence,	00	00		00
Philadelphia,	260	2039		2100
Baltimore,	336	1899		767
Portsmouth,	00	00		1508
Western States, &c.,	00	115		259
Total Coastwise,	4992	43609	48601	30229
TOTAL—bales—	0000	0000	220239	133737

FLOUR, PORK, BACON AND LARD.

DESTINATION.	Flour--Bbls	Pork--Bbls	Bacon-hhds	Lard--Kegs
New York	20579	15547	837	24418
Boston	61692	85[illegible]3	370	26548
Philadelphia	10685	1586	152	3751
Baltimore	....	1437	429	2405
Charleston	750	....	153	1690
Other United States ports	11963	1539	1656	3539
Cuba	2416	215	121	20830
Other Foreign ports	21249	2743	59	6193
*TOTAL,	129324	3136[illegible]	3778	89774
Last season,	182013	33[illegible]35	5818	139239

*Lard reduced to kegs--Pork and Beef to barrels.

TOBACCO—HHDS.

WHITHER EXPORTED.	PAST 3 DAYS.	PREVIOUSLY.	TOTAL.	LAST SEASON.
Liverpool,	715	4215	00	2225
London,	00	6319	00	3601
Cowes, Falmouth, &c.,	00	00	00	712
Total to G. Britain,	715	10534	11249	6538
Havre,	750	00	00	00
Bordeaux,	00	00	00	00
Marseilles,	00	300	00	853
Total to France,	750	300	1050	853
Stockholm,	00	00	00	00
Amsterdam & Rott'dam,	00	00	00	568
Bremen,	555	00	00	1887
Antwerp,	00	975	00	1415
Hamburg,	00	00	00	00
Gottenburg, &c.,	00	00	00	00
Total North of Europe,	552	975	1527	3870
Spain and Gibraltar,	00	6608	00	2012
Africa,	00	200	00	00
West Indies,	00	243	00	227
Leghorn, Trieste, &c.,	00	766	00	1678
Total other For. ports,	00	7817	7817	3917
New York,	50	2147	00	962
Boston,	00	224	00	129
Philadelphia,	00	597	00	150
Baltimore,	00	17	00	00
Richmond and Norfolk,	00	00	00	00
Other ports,	00	13	00	7
Total Coastwise,	50	2998	3048	1248
TOTAL—hhds—	00	00	24691	16426

BEEF, LEAD, WHISKY AND CORN.

DESTINATION.	Beef—Bbls.	Lead—Pigs.	Whisky—Bbls	Corn—Sacks.
New York,	2315	93218	5532	16479
Boston,	2431	53123	270	35605
Philadelphia,	199	28163	1718	933
Baltimore,	430	3231	3247	....
Charleston,	98	35	3798	....
Other U. S. ports,	490	...	8005	9495
Cuba	167	...	....	17662
Other Foreign ports	1194	320	184	8268
TOTAL,	7326	178090	12754	88442
Last season,	9338	272694	12154	225139

EXPORTS of Sugar and Molasses, from New Orleans, for five years, (up the river excepted,) from 1st September to 31st August.

WHITHER EXPORTED.	1846-47.				1845-46.				1844-45.				1843-44				1842-43.			
	SUGAR.		MOLASSES.		SUGAR.		MOLASSES		SUGAR.		MOLASSES		SUGAR.		MOLASSES.		SUGAR.		MOLASSES.	
	Hhds.	Bbls.	Hhds.	Bbls	Hhds.	Bbls.	Hhds.	Bbls.	Hhds	Bbls.	Hhds	Bbls.	Hhds.	Bbls	Hhds.	Bbls.	Hhds.	Bbls.	Hhds.	Bbls.
New York,	16754	802	2842	1556	33008	2448	3002	17515	49442	6794	9873	34322	11422	217	1882	15744	31549	.. .	7285	28030
Philadelphia,	11653	653	60	451	21804	2421	586	13925	21392	1422	2418	11575	8478	697	354	4214	14474	708	1088	8691
Charleston, S. C.,	3147	647	....	3238	3412	1198	2	6328	4426	95	....	5610	1502	....	...	6467	1090	100	63	3986
Savannah,	1352	58	....	1752	1062	65	....	2214	782	10	....	2686	483	....	....	1254	240	...	....	1640
Providence & Bristol,	....	....	....	....	....	....	579	280	....	....	1472	1051	....	....	475	55	....	....	576	106
Boston,	695	343	22	413	3208	1288	318	1402	6062	543	2124	14221	217	....	....	1001	2814	...	976	4809
Baltimore,	5981	395	337	3348	9143	1672	185	5181	12564	480	547	10943	5492	4.	586	5231	8660	663	1162	8459
Norfolk, Richmond & P'ters'bg	4806	966	252	3225	3997	1215	27	3767	4500	208	96	6029	562	....	....	2039	610	28	....	947
													1590	1	....	1581	2337	....	216	2316
Alexandria, D. C.,	156	....	.....	511	175	....	....	428	201	...	95	84	280	....	....	350	592	...	....	57[illegible]
Mobile,	3783	1038	....	6497	5739	1020	10	13464	3534	668	76	5218	3257	17	....	2836	3011	375	....	3313
Apalachicola & Pensa.,	1415	473	....	2565	1067	158	....	2039	838	102	....	1795	1670	548	....	2440	565	300	....	2[illegible]0
Other ports,	371	76	540	286	533	8	....	671	760	239	391	881	42	22	112	75[illegible]	102	100	800	1309
TOTAL—	50113	5451	4053	42208	83208	11493	4703	67214	104501	10561	17094	94415	34395	1544	3409	42962	66[illegible]41	2280	12366	66901

EXPORTS of Flour, Pork, Bacon, Lard, Beef, Lead, Whisky and Corn, for three years, from 1st September to 31st August.

DESTINATION.	1846-47.								1845-46.								1844-45.							
	FLOUR, Barrels.	PORK, Barrels.	BACON. Hhds.	LARD, Kegs.	BEEF, Barrels.	LEAD, Pigs.	WHISKY, Barrels.	CORN, Sacks.	FLOUR, Barrels.	PORK, Barrels.	BACON, Hhds.	LARD, Kegs.	BEEF, Barrels.	LEAD, Pigs.	WHISKY, Barrels.	CORN, Sacks.	FLOUR, Barrels.	PORK, Barrels.	BACON, Hhds.	LARD, Kegs.	BEEF, Barrels.	LEAD, Pigs.	WHISKY, Barrels.	CORN, Sacks.
New York,	63877	77828	3480	209945	9167	339560	8210	107890	83854	88228	2873	2 4323	5162	309681	4098	172186	74802	56046	1565	119967	5805	329345	2592	30051
Boston,	96507	76755	2379	165513	9053	123917	1162	12[illegible]678	122148	89164	846	190504	3501	139364	150	489523	75960	79617	727	133474	5922	135 89	600	81341
Philadelphia,	13296	5247	852	53377	564	135489	4856	15324	250	29783	1238	69153	99	70113	647	3671	3638	17242	834	39275	874	88810	1256	....
Bal imore,	3637	17167	1159	23251	556	9952	7103	3253	....	19523	729	39619	446	11961	2175	1000	....	131[illegible]5	624	23163	350	17455	500	....
Charleston,	7720	1004	2874	5362	150	465	8180	800	11476	2828	1962	5677	275	4620	8982	87953	1100	1038	2533	9332	24	....	4422	4382
Other C'stw. p'rts	38381	11033	11092	12813	2943	1000	33005	43842	68441	13434	12720	20671	4490	8460	41869	175582	43959	5603	5559	133 5	1827	78	22495	67513
Cuba,	43051	1092	1015	141002	467	149	....	133798	7094	1005	610	92336	391	....	...	....	23787	520	190	89897	206	....	....	9096
Other For'n. ports	1053037	40394	3053	293714	29096	13716	743	2076228	279931	28354	64	168621	13798	174086	260	211674	55891	8178	50	39815	8961	126262	495	27912
TOTAL—	1319506	230520	25904	907977	51996	624258	63259	2520813	573194	272319	21042	790904	58162	718285	58181	941589	279137	181409	12082	468338	23969	707439	32360	209295

☞ In the above, the exports to Mobile, &c., via the Pontchartrain Railroad and New Canal, are included.

EXPORTS of Cotton and Tobacco, from New Orleans, for ten years—commencing 1st of September, and ending 31st of August.

WHITHER EXPORTED.	BALES OF COTTON.										HHDS. OF TOBACCO.									
	1846-47	1845-46	1844-45	1843-44	1842-43	1841-42	1840-41	1839-40	1838-39	1837-38	1846-47	1845-46	1844-45	1843-44	1842-43	1841-42	1840-41	1839-40	1838-39	1837-38
Liverpool,	367810	521953	529675	488817	624681	393990	396010	459943	297793	466886	3374	8976	4947	8808	6788	6930	5252	3827	4115	2695
London,	48	159	2025	518	61	38	3 4	113	6	123	5173	12888	6475	8291	9851	7212	8732	4329	3725	3579
Glasgow & Greenock.	10598	17893	36213	21265	35831	15574	20415	26603	7390	16147	....	....	....	....	....	....	....	....	37	....
Cowes, Falmouth, &c	6102	8131	17975	14893	15939	16740	9188	13560	2459	48	1148	2641	1131	5424	10798	6827	6681	992	871	3695
Cork, Belfast, &c.,	810	14181	....	2182	2926	1108	4393	4549	2139	....	....	....	....	....	....	....	....	....	....	....
Havre,	90103	146153	112995	107973	159658	161103	157277	2 6311	110978	110384	1159	2215	3514	4846	4648	4 37	4224	3655	1455	2858
Bordeaux,	330	2315	2314	1418	2861	2247	28 7	6581	1348	4107	242	1067	1565	1156	2332	10 4	814	11 7	....	504
Marseilles,	3323	6806	7857	7462	9982	16992	21933	21989	6371	7129	2096	1006	3934	5102	4665	1933	1774	1814	315	1516
Nantz, Cette & Rouen,	1963	4254	1854	3127	8374	2930	1914	5609	2070	6383	....	....	....	....	....	....	....	....	....	....
Amsterdam,	....	2019	1253	1360	2593	584	....	3688	49	932	....	451	50	3775	2700	1138	....	....	224	....
Rotterdam & Ghent,	595	53	2355	512	2173	2907	....	709	....	....	568	1104	10 4	917	2933	1882	....	....	....	....
Bremen,	4369	3419	9211	2770	13303	6369	1706	1084	47	636	4446	6328	12012	96 2	7888	8997	4 12	2464	1366	1500
Antwerp, &c.,	2912	7838	7196	8499	17693	52 9	2264	7377	....	1598	1652	4294	3862	2178	5657	369	1219	109	....	....
Hamburg,	7466	3585	9123	3156	13664	5678	2983	6846	310	3149	4 3	181	786	23 3	1477	3401	1064	1465	....	2 6
Gottenburg,	4376	3877	1630	402	114	286	2793	2994	947	343	949	943	9 9	731	963	946	1559	745	939	576
Spain and Gibraltar,	177 5	1679	821	....	401	78	561	1508	1225	5423	11795	9843	6749	10681	4496	72 4	4142	3843	3400	1542
Havana, Mexico, &c.	9376	29800	62083	33151	21177	12818	19002	3 594	3380	2659	....	....	9 3	1601	1 63	981	142	1 13	618	725
Genoa, Trieste, &c.,	30542	52607	272 1	19704	17662	10610	16801	25652	4820	5910	5046	2375	30 1	1556	1760	554	2	44	598	563
China,	....	...	2353	....	4303	....	....	.. ..	..	....	....	.. ..	....	....	....	....	....	....		....
Other foreign ports,	6579	8050	2267	1208	1342	174	90	1044	113	902	1008	298	794	1177	217	616	667	343	315	186
New York,	55187	74757	52880	82814	48036	31215	55930	46354	62175	39384	5458	4848	6936	6964	1 533	7 90	7460	8132	8174	9758
Boston,	75546	111666	75357,	72400	73891	54062	81626	54 42	49497	39853	2664	913	4938	2585	3650	2351	31 9	2888	2816	2616
Providence, R. I.,	470	5783	78	211	674	1910	3132	1811	3701	1667	....	.	....	....	....	....	....	....	....	....
Philadelphia,	13582	13690	6784	6919	3253	2846	5721	6495	6371	8224	2779	1030	2536	1286	2845	936	2126	1963	1291	1649
Baltimore,	7288	5507	3640	4698	3278	1703	4832	3 45	3450	6341	301	427	478	1167	2433	2 8	517	219	296	770
Portsmouth,	3491	2769	1 53	4136	....	2658	9 25	5099	5369	4819	....	....	....	....	....	....	....	....	....	....
Other coastwise ports	1437	910	2423	3280	3 00	3716	581	6020	7171	5026	115	217	2145	1100	2194	225	287	482	225	617
Western States,	2500	5000	6 00	2500	2000	1722	....	....	....	....	....	....	....	....	....	....	....	....	...	....
TOTAL,	724508	1054857	984616	895375	1088370	749267	821288	949320	579179	738313	50376	62 45	68679	81249	89891	68058	54667	4 436	30780	35555

RECAPITULATION.

Great Britain,	385368	56232	5858 8	527675	679438	421450	3 310 5	4768 3	3787	4832 4	9695	24505	12553	22523	27 37	2 969	2 665	9139	5748	9968
France,	95719	159528	12502	11998	180875	183272	183931	24 490	12 767	12 303	3497	4288	9 13	1 1 1	116 5	697	6812	6606	177	4 78
North of Europe,	26297	28841	33035	179 7	5 882	212 7	9836	13712	1466	7566	8 18	133 1	19 51	20175	21618	2 252	8 40	6 05	2654	2439
S. of Europe & China,	57623	84 86	92 58	52855	43543	23506	36361	57754	9425	13992	17849	12516	11 29	14349	7536	9 53	5645	5 12	48 6	2860
Coastwise,	159501	220082	14 215	176958	134132	99832	16 847	122506	137734	1 5254	11317	7435	17033	13098	21655	1081	13505	13684	128 2	15410
TOTAL,	724508	1054857	984616	895375	1088870	749267	821288	949320	579179	738313	50376	62045	68679	81249	89891	68058	54667	40436	30780	35555

COMPARATIVE PRICES OF COTTON, ON 25TH DECEMBER,

In the following years.

	1847.	1846.	1845.	1844.
Inferior,	—@—	00@00	00@6½	3 @3½
Ordinary to good Ordinary,	5¾@6½	8¾@ 9	6½@6⅞	4 @4¼
Middling,	6⅛@6⅜	9⅜@ 9½	7 @7⅛	4½@5
Good Middling,	6¾@6⅞	9⅝@ 9¾	7¼@7⅜	
Middling Fair,	7⅛@7¼	9⅞@10	7½@7¾	5⅛@5½
Fair	7½@7¾	10¼@10⅜	7⅞@8	6 @6¼
Good Fair,	nominal.	10¾@11	8⅜@8¾	6¾@7⅛
Good and Fine,	nominal.	11½@12	9 @10	7½@00

COMMERCE AND IMPROVEMENTS OF LEXINGTON, MISSOURI.

We have taken the following statistics from the "Lexington Weekly Express" of January 18th, 1848:

"*Mercantile Business.*—The exports for the year amounted to about $250,000—the staples of this section of country—hemp, wheat, flour, dry-hides, bacon, pork, lard, &c., making up the principal portion of that sum. The imports were something near $200,000 in value, consisting of goods, groceries, salt, lumber, &c.

"Horses to the value of $20,000, and oxen to the sum of $25,000, have been purchased and sent from this point.

"The aggregate number of hogs packed since the 1st of November last, has reached 6,700.

"During the season, there were nearly 190 arrivals of steamboats up stream, and about 180 down stream.

"We find, at this time, 17 dry goods houses; 2 dry goods and boat stores, 1 family grocery; 2 tin-ware and stove stores, 3 drug stores, and 3 lumber yards.

"*Mechanical Employments.*—Blacksmiths, 8 shops; coopers, 5 shops; cabinet makers, 2 shops; carpenters, 11 shops; iron and steel turners, 1 shop; wagon makers, 6 shops; coach makers, 1 shop; silver smiths, 3 shops; tinners and sheet iron workers, 2 shops; painters and glaziers, 2 shops; chair makers, 1 shop; saddlers, 4 shops; tailors, 7 shops; shoemakers, 3 shops; bakeries, 3 shops; milliners, 4 shops; gunsmiths, 1 shop.

"There are two printing offices and one book-bindery and blank book manufactory.

"*Professions and Schools.*—Physicians, 14; dentists, 4; attorneys at law, 14.

"There is one high school for young men; one for young ladies; two schools for boys, and four for girls.

"*Mills and Manufactories.*—Steam flouring mills, 2, (one now building;) steam

saw mills, 2; steam distilleries, 2, (one now building;) wool carding machines, 1; tanneries, 1; fanning mill manufactory, 1; rope walks, 3.

"*Banks and Insurance Offices.*—Branch of the State Bank of Missouri; 1 Agency for the Mutual Fire and Marine Insurance Company, of St. Louis, and 1 Agency for the Home Mutual Fire and Marine Insurance Company of St. Louis."

The improvements of last year, in part, consist of 43 buildings, principally dwellings; there was also erected a Masonic College 3 stories, 50 by 80 feet, and a Court House 2 stories, 50 by 80 feet. There were about 3,000,000 brick burned in 1847, all of which were used in building except about 400,000.

COMMERCE AND POPULATION OF PEORIA, ILLINOIS.

We have made up the following statistics of the business and population of Peoria, from the "Peoria Register" of the 14th instant:

In point of beauty and pleasantness of location, Peoria stands unrivalled among the cities of the West. Nor is its situation less interesting in a business point of view. Situated about mid-way between St. Louis and Chicago; communicating with the Mississippi River and the Lakes, by the means of navigation at once safe and sufficient for all business purposes; surrounded by a country unsurpassed in fertility; and settled by a population intelligent, enterprising and industrious, it promises to take rank among the important cities of the Mississippi Valley.

The exports for the year 1847 are valued at $500,000, and consist of the following articles:

Flour 38,550 barrels; wheat 100,776 bushels; corn 204,850 bushels; oats 15,279 bushels; barley 1,550 bushels; pork 16,200 barrels; bacon in bulk 870,635 pounds; pork in bulk 656,640 pounds; whisky 4,500 barrels.

Steam Boats.—The number of steam boat arrivals at Peoria in 1846 was 871, being an increase of 177 over the preceding year. There were 60 boats in the trade at different times, 24 of which were regular packets. The aggregate amount of tonnage was 9,247. Four of these boats were owned at Peoria, and one at Chilicothe in the same county. The navigation opened on the 20th of February and closed on the 14th of December.

Pork and Beef Packing.—One individual, Mr. Tobias Myers, paid last season $60,891 for stock, besides the cost of slaughtering and packing. He slaughtered 1,108 head of beef cattle averaging 617 pounds; 4,230 hogs, and purchased hogs already slaughtered 1,680, making in all 5,910, of which 2,663 averaged 244 pounds. He packed 2,600 barrels of Navy beef; 2,400 barrels of Navy pork; 325 beef hams; 22 barrels of beef tongues, and 40 barrels of rump pork. The

yield of lard was 1,164 barrels; yield of tallow 61,400 pounds; 27 barrels of neats foot oil, and 123 barrels steam grease. Beef hides 92,100 pounds, average weight 83 pounds; the hams and shoulders in bulk 438,365 pounds.

Flouring Mills.—There was ground at Ruggles' Steam Mill 69,443 bushels of wheat, producing 13,900 barrels of flour, and at Rankin's Steam Mill 78,002½ bushels of wheat, producing 15,600 barrels of flour.

Distilleries.—Mr. S. Thompson shipped from his establishment in 1847, 4,500 barrels of whisky, and fattened 1,200 hogs. He consumed 65,000 bushels of corn, 35,000 bushels of stone coal, and paid $4,000 for labor.

"*Stores, Shops, Mechanics, &c.*—At this time there are in the city 24 dry good stores; 6 dry goods, boots and shoes; 11 grocery and provision stores; 5 hardware stores; 5 clothing stores; 5 drug stores; 9 drinking establishments; 3 jewelry shops; 4 copper, tin and sheet iron shops; 2 plow manufactories; 8 wagon maker shops; besides many other shops of various mechanics.

"The following will show the number of various mechanics in the city as near as I could get them: Carpenters and joiners, 86; coopers 40; masons, plasterers and stone masons, blacksmiths, 30; cabinet makers, 17; shoemakers, 20; tailors, 10; harness makers, 12; coach and wagon makers, 15; painters and glaziers, 12; chairmakers, 7; mill makers, 6; plow makers, 9; hatters, 4; machinists, 3; moulders 6; silversmiths, 7; tin and coppersmiths, 7; gunsmiths, 3; stone cutters, 5; bakers, 7; potters, 3; printers, 11; and 3 weekly papers, and a job-office; 15 lawyers; 11 physicians; 3 dentists, and 3 portrait painters.

"The following will show the population of the city from 1844 to the present with the increase in each year:

"January 1, '44, under 20 years, 805; over 20 years, 814; total, 1619.

"January 1, '45, under 20 years, 972; over 20 years, 962; total, 1934; increase in each, 315.

"Jannary 1, '46, under 20 years, 1136; over 20 years, 1256; total, 2392; increase in each, 458.

"January 1, '47, under 20 years, 1522; over 20 years, 1492; total, 3014; increase in each, 622; increase in voters, 183.

"January 1, '48, under 20 years, 2327; over 20 years; 1752; total, 4079. increase in each, 1085; increase of voters 163."

There are 633 dwellings and 77 stores in the city: of the former 238 are brick and 385 frame, and of the latter 34 are brick and 43 frame.

Whitney's Pacific Railroad.—The projected road from the North-western States to the Pacific, advocated by Mr. Whitney, has increased its proselytes, if we may judge from the resolutions lately sent to Congress by the New York Legislature, and the resolution passed by that of Alabama.

THE

WESTERN JOURNAL,

M. TARVER AND T. F. RISK,

EDITORS AND PROPRIETORS.

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MARCH, 1848.

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OF

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4. The Internal Commerce of the United States.

5. The Mineral Resources of the Valley of the Mississippi.

6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.

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THE

WESTERN JOURNAL.

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ART. I.—ON THE CLASSIFICATION OF THE MINERAL MASSES COMPOSING THE EARTH.

In order that those who are not familiar with the principles of geology may form some definite idea of the basis of its classification of the mineral masses which enter into the constitution of the crust of the earth, it will be necessary to refer to some of the leading facts and general views embodied in the science.

The object of geology, in its most general sense, is to collect and associate all the facts and phenomena which are identified with the natural history of the earth. Its more definite objects are to ascertain the constitution of the mineral masses of which its crust is composed—their relation to each other, or their order of super-position—their relative ages as developed by the organic remains deposited in them, and the influence of physical laws and cosmical agencies in modifying their past and present condition. In the amplitude of its designs it embraces every fact and presses into service every principle which can reflect light upon the past history and present state of the earth. It thus becomes a complex science, borrowing the elements of its views, and the principles of its reasoning from other sciences, while it imparts to them in its turn, many new and valuable results.

In our geological enquiries, we may direct our attention to a great variety of objects of investigation. We may study the relations of the earth as one of the planetary masses of our solar system; the action and reaction which take place between it and other masses; how far these have influenced its physical condition; their comparative densities; and the probabilities in favor of an identity in constitution. In attaining these ends it becomes intimately associated with astronomy. If we extend our investigation to the statical and dynamical relations which have existed in past ages, and which, perhaps, (somewhat modified,) are still operative in modelling and fashioning the surface of the globe, giving it its agreeable and

beautiful diversity of mountain and valley, of hill and dale, of streamlet and river, of lake and ocean. We study it in relation to general physics and physical geography—the latter having first unfolded its principles and gave rise to its earliest development as a science.

In directing our enquiries to the elementary constitution of the rocks which form the upper layers of the body of the earth, their lithological characters and the influence which one may have exercised in the formation of another, our results become intimately associated with those of chemistry and mineralogy.

If we extend our observation again, to a survey of the organic remains embedded in these mineral masses—to the local influence or universality of the causes which operated during their existence—to the relative ages of these rocks as characterized by differences of genera or species in their faunas and floras, we discover relations which form the subordinate ground-work of modern classifications in geology, and blend it intimately with botany and zoology.

Directing our enquiries to the chemical constitution of these diversified masses, to the changes which occur in them from atmospheric agencies—the variety of soil to which their decomposition gives rise—the influence which their elevation or depression—their absorption or radiation of heat—their permeability or impermeability to moisture, exercises on the transparency, density and temperature of the atmosphere, and consequently, their influence on climate, we give to geology a still wider range, and study it in that philosophical method which enables us to trace the influence of the inorganic world upon the development of organized forms of being, and thus indirectly associates it with the science of life.

Lastly, we may survey these mineral masses in their distribution, as modified and rendered available to the arts and commerce of the world; their influence in varying the forms of human industry, giving rise to national peculiarities and to national wealth, and in aiding the regular advancement of kingdoms and nations in the march of civilization and refinement. In this view it becomes more practical in its results, and intimately identifies itself with the principles of political economy and enlightened legislation.

It will be perceived from this general summary of the leading objects of geological enquiry, that as a science it is almost umlimited in extent; and involves in its considerations questions of the highest moment, and of the deepest philosophical interest.

The earth, as is well known, is an oblate spheriod, being compressed at the poles and elevated to a corresponding extent at the equator. This difference between its polar and equatorial diameter, is considered a conclusive proof that at one time it was in a state of fusion—its ellipticity being the result of a centrifugal force operating on it at the time. Its loss of heat, and consequent contraction in cooling, must have had a powerful agency in producing the irregularities of its surface. Since it was prepared for the abode of man and the present races of animals, it has experienced no appreciable loss of heat or change in its density.

Modern calculations, founded on geodesical measurements, give it an ellipticity of 1-299, being a difference of about 23 1-5 geographical miles between its polar and equatorial diameter.

This spheroidal figure of the earth is not uniform in its outline, but is interrupted by lofty mountains and elevated table lands, by deep valleys and water-worn channels. Were the waters which fill its profoundest depressions and constitute oceans and inland seas, removed, its continental masses and islands, would appear as elevated table lands and mountain chains, and the irregularity and boldness of its form would be materially increased.

These continental masses and islands form the smaller portion of its surface in contact with the atmosphere, or the ærial ocean which surrounds it. The relative proportion of the land to the water being estimated at about as 1 to 2.8, or, according to Rigaud, as 1 to 2.7. The islands, it is estimated, would form only about 1-23 part of the continents: and, by refering to the globe, it will be found that the northern contains three times as much land as the southern hemisphere, and that the major axes, or lines of elevation above the sea, on the two continents, are opposite in direction.

The mean density of the earth has been recently estimated at 5.44, distilled water being 1. The strata near the surface giving only a density of 2.7, and when taken with that of the ocean, gives a density of only 1.6. These estimates have led to the important inference of the greater density of the interior portions of the globe.

The temperature of the earth is partly derived from the sun, while it has temperature of its own, which is supposed to be the residum left after it had cooled by radiating its heat into the space which surrounds it. Its own internal heat exercises no influence on the temperature at the surface, for, reaching a line below the surface, called the line of no variation, it is uniform at all seasons. This line of no variation is only a foot below the surface at the equator, and is found to increase in depth towards the poles. From this line of no variation the temperature of the earth increases as we descend towards its centre. Accurate measurements have established the fact that for every 54½ feet of descent there is an increase of one degree of Fahrenheit's scale. The arithmetical ratio of these numbers would give a temperature sufficient to melt granite at the distance of twenty-one miles below the surface. From this regular increase in temperature it has been infered by some that the centre of the earth is still in a state of fusion. But this, it is obvious, can only be received as a plausible conjecture; for, so far as the interior of the earth is concerned, we cannot determine anything except its temperature and its density. The labors of the geologist are limited to its surface or the various masses which are presented by the disruptions in its external crust. By examining the arrangement of these as presented in the deepest mines, which are only about one-third of a mile below the level of the ocean, and on the flanks of the highest mountain ranges, which do not exceed six miles in elevation, and

by comparing observations made at different and distant points on the earth, a regularity and order in the relations of these masses have been found to exist, which scarcely could have been anticipated in the midst of such seeming confusion Though this field of observation is exceedingly limited when compared with the whole diameter of the earth, it has proved amply sufficient to give us a knowledge of its constitution and the series of revolutions by which its gradual development to its present condition has been characterized.

The varying constitution of these masses—the regularity of their arrangement in a successive series, or their order of super-position, one above another—the organic remains which have been found in them, and which defines their relative ages, have all been carefully studied, and have resulted in a more definite and natural division in their classification.

The general divisions established among the different formations have been founded either on their relative ages or their origin. The subdivisions into orders of these classes, seems to have been much more arbitrary, for the principal groups in each have been designated in some instances by terms expressive of the constitution of some prominent rock in the formation, and in others by the names of countries or places in which they are found distributed to the greatest extent.

Following the arrangement into classes and principal groups most commonly received, we will refer to each in succession, proceeding from below upwards.

1. Plutonic Rocks.—This division includes only a part of the rocks which are supposed to be of igneous origin. The different varieties of granite, and a few porphyries are found to constitute the more solid foundation on which all the other formations seem to repose. Granite is massive in form, and presents a rough crystaline texture when fractured; it is not divisible into layers or strata, and it shows the appearances of a mass which has cooled from a state of fusion, under circumstances of great pressure, and entire occlusion from the atmosphere. It seems not to have been erupted or ejected through fissures in other formations so as to have carried with it and cemented small fragments of these, as we find in the breccias of volcanic origin. Though often found filling chasms in other rocks, and effecting changes upon them similar to the changes effected by volcanic action, it seems no where to present the appearance of having been elevated by a violent or turbulent expansive force.

2. The Metamorphic Rocks.—This division embraces the lower stratified rocks, and is subdivided into the gneiss mica slate, primary limestone, tolcose slate, hornblende slate, quarts rock and clay slate. Several members of this formation, like granite, are crystaline in their texture, but present planes of stratification, which show that they were formed under different circumstances. It is supposed that they were deposited in the more ancient seas, and having undergone fusion, subsequently, under the weight of the superincumbent waters, assumed their slaty or schistous character, and their crystaline structure. This view is rendered extremely plausible, if not certain, from the fact that such transforma-

tions have been discovered where the lava of volcanoes have come in contact with argillaceous and calcareous rocks of more recent formation, and that modern chemistry has effected precisely similar transformations on the same materials.

In classifying rocks according to their origin, it is evident that these metamorphic rocks belong properly to the aqueous or sedimentary division, though the circumstances attending their formation were somewhat different from that comparative state of quietude which accompanied the deposition of the fossiliferous strata found reposing upon them. That the surface of the granite on which they rest was subject to greater disturbances may be inferred from their more frequent intercalation than the fossiliferous rocks, while the agency of heat may be traced, not less in their crystaline structure, than in the manner in which they have sometimes been bent, or contorted, and folded upon themselves.

3. Stratified Fossiliferous Rocks (*the aqueous rock of Mr. Lyell.*)—As indicated by its name, this great division of rocks embraces all the formations which contain the remains of animals or plants embedded in their substance; and, consequently, includes the transition secondary and tertiary formations of the improved Wernerian system, or the Silurian, Devonian, Carboniferous, Permian, Triassic, or new red sandstone, Lias, Oolitic, Wealden and Tertiary groups of more modern classifications, which we have adopted, as being at present most generally received. The formations constituting this extensive division, differ in some respects from the plutonic and the metamorphic rocks—and their transition or gradual change from the metamorphic to a well characterized fossilifferous state is often obscure. The entire series is formed of argillaceous calcareous and arenenaceous strata, often several thousand feet thick, presenting a compact and earthy structure, but seldom any evidences of having been regularly crystalized. These strata are often divisible into layers or beds commonly called shales or schists, which are not so thin and compact in the upper as in the lower series. The inferior group in this division embraces the lower Silurian rocks; these are stratified, and present the evidences of having been deposited at a period characterized by a state of greater tranquility than that of the metamorphic rocks. Interculations, however, are observed here, which prove that revolutions formerly so frequent in the metamorphic rocks, became less frequent in their occurrence. It is in the lower strata of this formation that the first remains of organic life have been discovered.

A few fucoids polyparia and brachiopida are found in the lower beds of the Cambrian or lower Silurian. As we ascend in the series of formations, these remains of a former world increase in number, and offer us many new genera and species. Fishes, the first family of vertebrated animals, appear for the first time in the upper Silurian, and receive their full development in the Devonian or old red sandstone formation. These types, so profusely multiplied in the Silurian and Devonian, undergo an almost entire extinction in the Permian and Triassic series, and give place to new genera and species. It is in the Permian that we first find the remains of the Thecodont and other Saurians, (huge vertebrated an-

imals) partaking of the nature of both fishes and reptiles, which receive their greatest development in the lias. The foot prints of birds are found for the first time in the Triassic or upper new red sandstone.

In the lower Oolite two mammiferous quadrupeds, of the marsupial or opossum tribe are found, as the first and only representatives of this class now so extensive. Above the cretaceous or chalk in the Paris Basin, Anaplotheroid and other races make their appearance, become extinct and give place to the Mastodon, the Elephant, the Megalonix and others, which are found in the alluvial deposits on the surface. Among all these remains no traces of man or his works have been found, in a fossilized state, in any formation which is not evidently cotemporaneous.

From this it will be perceived that in the types of animal life, the creation has been successive from the less to the more perfect forms of organization. The same may said of the vegetable world. The cellular or agamic were succeeded by the endogenous; and these by the eogengenous, or phenogamous families, which at present clothe and beautify the surface of the earth. It appears, then, that the types of the organized forms found in a fossilized state, have been preserved till the present time, but the genera and species have, in most instances, been destroyed by the revolutions which have marked the past history of the earth.

We have given greater extension to this notice of the fossiliferous rocks, because two of its groups, the Carboniferous and Silurian occupy so prominent a place in the geology of the west. The Silurian system is well displayed, and attains its greatest power in the State of New York. Many of its strata thin out in proceeding towards the west, where the carboniferous (not found in the State just mentioned,) attains its greatest development. In the subjoined table, we have endeavored to present at a glance, the equivalency, or the parallelism of the formations of Europe, with those of New York and the Western States.

It yet remains to notice one more division, or class of rocks:

4. Volcanic Rocks, embracing basalt, trachyte, diorite, and other igneous rocks, are of limited extent, when compared with the fossiliferous strata to which we have referred. They are found principally in the vicinity of active or extinct volcanoes in many parts of the world. Though of igneous origin, they differ from Plutonic Rocks in being often formed of breccias and tufas, and in presenting a less crystaline and a more porous or vessicular structure. They occasionally penetrate and fill up fissures and chasms in the Plutonic and Metamorphic Rocks, and then constitute what are termed *dykes*. Sometimes they are found intervening between fossiliferous strata, but most frequently penetrating all the other formations in the earth's crust, capping or over-spreading them at the surface.

The peculiarities in the structure of some volcanic rocks, are not only sufficient to distinguish them from those belonging to the plutonic, but prove that though identical in their igneous origin, the circumstances which prevailed at the period of their formation were essentially different. The granites seem to have been formed under great pressure, excluded from the influence of the atmosphere and

cooled so slowly as more definitely to assume a crystalize structure. Volcanic rocks, on the contrary, appear to have been formed near the surface exposed to the action of the air, and to have cooled rapidly, and crystalized imperfectly. That they were formed under moderate pressure, is obvious from their want of compactness manifested in their vesicular and porous texture.

We have thus attempted to present a condensed view of the nature of the formations which constitute these four clases of rocks. In this arrangement we have preferred a classification of them according to their origin, rather than their relative ages.

The relative ages of the plutonic, metamorphic and volcanic rocks cannot be properly determined; but the fossiliferous strata are not liable to the same objection, and we have availed ourselves in the following table of the distinctions according to the priority established among them by European and American Geologists:

TABLE OF GEOLOGICAL EQUIVALENTS OF THE EUROPEAN, NEW YORK AND WESTERN FORMATIONS.

	Principal Groups.	European Equivalents.	New York System.	Equivalents of Western States.
3 *Fossiliferous Rocks.*	Alluvium.			
	Drift.			
	Tertiary.			
	Chalk.			
	Wealden.			
	Oolite.			
	Lias.			
	Triassic.			
	Permian.			
	Carboniferous.	Coal of England.		3 Sandstone schists & bituminous lime-[stone.
		Carboniferous of England.		2 Carboniferous or mountain limestone.
		Yellow sandstones of Ireland.		1 Waverly sandstones.
		Old red sandstone of Scotland & Wales.	28. Sandstones and schists, Old red sandstone.	

3 *Fossiliferous Rocks.*	Devonian.	Eifel and Devonshire Rocks.	27. Chemung group.	
			26. Portage group.	
			25. Genessee slate.	Black bitumenous shale, Louisville.
			24. Tully limestone.	
			23. Hamilton group.	Limestone with shells, Louisville.
			22. Marcellus slate.	
			21. Carniferous limestone.	Limestones with coral, Falls of Ohio.
			20. Onondaga limestone.	
			19. Schoharie grit.	
			18. Cauda galli grit.	
			17. Oriskany sandstone.	Sandstone Indiana.
	Upper Silurian.	Ludlow Rocks.	16. Upper pentamerus limestone.	
			15. Delthyris shaly limestone.	
			14. Pentamerus limestone.	
			13. Water lime.	
			12. Onondaga salt group.	Salt group of Ohio.
		Limestones and shales of Wenlock.	11. Niagara group.	
		Upper Carodoc of England.	10. Clinton group.	Cliff or Silicious Magnesian limestone.
			9. Medina sandstone.	
			8. Oneida conglomerate.	
			7. Gray sandstone.	
	Lower Silurian.	Schists in Sweden over red limestone.	6. Hudson River group.	
			5. Utica slate.	Blue limestone, Cincinnati.
			4. Trenton limestone.	Compact limestone.
		Bituminous schists & limestones of Sweden	3. Black River limestone.	
			2. Silicious limestone.	
		Inferior sandstones of Sweden, &c.	1. Potsdam sandstone.	
Metamorphic.				
Plutonic.				

ART. II.—ON THE NATURAL ADVANTAGES FOR MANUFACTURING ON THE OHIO RIVER.

"THE natural elements of a manufacturing district are these:

1. Power—cheap, ample, and certain.
2. Cheap living.
3. Facilities of transporting man and matter.
4. Proximity to the materials to be manufactured.
5. Nearness of the market to be supplied.
6. An healthy position and a climate so equable and temperate that man may sustain continuous labor, even in partial confinement.
7. A good site for buildings and near suitable building materials. Let us examine these in their order.

"1. POWER.—There is now scarcely any handicraft work, from the simplest to the most complicated, which is not materially aided by machinery. Hands seem to be merely required to set that machinery in motion and to direct its movements. So wonderful are the inventions of this century, that we dare not state the ratio of decrease of human labor in any branch of manufactures. A few years since we supposed that the cotton spindles and looms were perfect, or nearly so; yet, within four or five years, a few simple improvements have been made that have reduced the number of hands in a cotton mill more than one half; and it is now said that much of the cotton machinery in England and New England is scarcely worth having.

"The effect of these improvements is to make cheap power more important than cheap labor.

"It cannot be necessary to adduce many reasons why manufacturing should be carried on where the power is found; water power of course is stationary; and, where steam is the motive power, it is generally far cheaper to move the raw material than the coal. For example: 1,000 tons of coal are required in the manufactory for 600 tons of cotton, and from three to five tons of coal for one of iron. Certainly there are exceptions to the rule; it is cheaper to transport coal from Nova Scotia and Pennsylvania to New England, than to pay the aggregate freight on the cotton, dry goods, and provisions to and from the bleak coasts of Sidney and Pictou, or the barren hills around Frostburg and Pottsville. Perhaps this exception will be but temporary.

"All the manufacturing towns of England are in the vicinity of coal-fields. Even the woolen mills of Sussex and Essex have yielded in competition with those of the coal districts.

"When the two are to be combined, the tendency of the bulky is to draw the heavy article to it; and the more valuable the material the better it will bear transportation.

"The copper and tin ores of Cornwall are taken to the Welsh coal fields to be smelted; so also have been the copper ores of Cuba and Lake Superior. The

coal at Pittsburg has drawn to it the lead of Illinois and the iron of the Juniata, of Ohio, and Kentucky, and even of Tennessee and Missouri.

"The same rules are applicable to the next element—cheap living.

"The coal of England attracted our cotton; but, although South Wales was nearer than Lancaster, Manchester became the seat of cotton manufactures, because, besides being in a coal district, it was the centre of a rich agricultural country. The same causes placed Sheffield, Birmingham, and Leeds where they are, instead of on the Tyne, or the Wear. The Staffordshire potteries are over the beds of coal and clay.

"While colonies, we were (as Canada is now) compelled, by direct or indirect legislation, to wear English goods; and for half a century after the revolution had emancipated us from this *quasi* necessity, the English artisan was (practically) confined within prison limits; he was not permitted to emigrate, and he could not send plans, models, or machinery abroad.

"Slater, the father of the cotton manufacture in America, could not (so closely was he watched at the custom-house) even smuggle over a single drawing or pattern. He had, however, acquired a full knowledge of the Arkwright principle of spinning, and, from recollection and with his own hands, made *three* cards and seventy-two spindles, and put them in motion in the building of a clothier, by the water wheel of an old fulling mill.

"Let him who doubts the practicability of manufacturing here, look at this humble beginning and take courage. This pioneer, with very slender means and with few friends, surmounted every difficulty, amassed a fortune, and lived to see New England a manufacturing rival of England.

"Although we have coal at home and at from one-half to one-sixth of its cost in Lancaster or Massachusetts, the most of our cotton and no small part of our hemp and wool is sent from three to six thousand miles to be manufactured; and then our flour and corn and pork are sent in the same direction to make up the deficiency of food among the manufacturers.

"It is not very strange that this state of facts *has* existed, but it will be passing strange if it continue to exist much longer. It will not even require another year of famine abroad to show clearly and *practically* that it is far cheaper to transport the spinner, the weaver, and the machinist to our coal, corn, and cotton, than to pay one freight on the corn, and two on the cotton.

"The third, fourth, and fifth elements of a manufacturing district are *facilities of moving man and matter, and proximity to the raw material and to the market.* These are resolved into cost of transportation.

"General impressions on this point are very erroneous; and, as the result of my statistics may far exceed the belief of those who have not investigated the subject, I give the facts for the full examination of all who feel an interest in them.

"In these articles I refer specially to the cost of manufacturing and vending

cotton goods because this branch of manufacturing is of more importance and better understood than any other.

"Some years since a pamphlet was published in England, by Mr. Graham, on 'The Impolicy of the Tax on Cotton Wool.' In this is an affidavit of Mr. Gemmell, of Glasgow, who states, 'that, although he was for several years in the habit of supplying Chili with cotton domestics, he has latterly been obliged to abandon the trade in consequence of being unable to compete with the manufacturers of the United States.'

"Chili is a market equi-distant from the two competitors for her trade. What gave New England such an advantage over cheap labor, cheap coal, and cheap capital of England? The difference in the cost of transportation on the raw material.

"In 1839–'40, Montgomery gives this estimate of the cost of importation of cotton to the British manufacturer, the first cost of the cotton being 14 cents per pound.

Charges on shipment	4	per cent.
Freight and insurance	12½	"
Importer's profit	5	"
Inland carriage	1½	"
Duty	4½	"
Total average	27½	"

"While the average cost to the New England manufacturer is stated at 11 per cent.

"The estimate of the actual charges of manufacturing in the two countries gives an average of six mills per yard against us; yet, taking both charges into the estimate, the net advantage was three per cent. in our favor; and besides this, our goods were the best.

"Since 1840, the British Government has been obliged to take off the duty, but it could not lessen the cost of labor, of power, or capital. The wages of the operative then were barely enough to support life; the cost of coal must increase as the seams nearest the surface are exhausted, and it is doubtful whether the capital then invested in the cotton mill was paying any interest.

"The changes that have since occurred on this side of the water have all been in our favor; that is so far as the cost of manufacturing is concerned. More experience has given us greater skill; we have more system and more economy; new facilities of intercommunication have brought our producers and manufacturers of cotton nearer to each other and lessened the cost of their mutual exchanges; but, more than all, the cost of labor, in which England had so much the advantage, has been lessened over one-half; that is, less than one-half is now required. Besides, of late years, the supply of cotton has been so near the demand that the price has fallen from fourteen cents per pound to an average of nine or eight cents; as the cost is reduced our relative advantage is increased.

"From these facts we have this *corollary;* that, *as the cost of labor, power, and material is reduced, the cost of transportation rises in importance.*

"If England cannot profitably compete with us in the Chili market, certainly she cannot compete with us here: for the width of the Atlantic gives us a protection, directly or indirectly, of at least fifteen per cent. *ad valorem.*

"In point of fact, just as fast as the American manufacturer is able to supply the home demand in any article, the English manufacturer is driven from our market, unless, to raise money or to break down a rival, he is prepared to sell at less than cost. It is to be hoped that the wages of labor in this country will never be so low that we can compete with China in embroidered shawls or ivory trinkets; or with France and Germany in tapestry or laces made by hand. In such fabrics the cost of transportation bears but a slight proportion to the cost of labor.

"It is clear then that England cannot sell coarse, heavy, and cheap goods in this valley in competition with our own manufacturer. Let us see if New England can.

"In 1821, as I am told, the first mill for spinning cotton yarn on an extensive scale was established on the Ohio. Now, who sees in our stores a hank of English or Eastern cotton yarn? The same cause that has produced this result—that is, the cost of transportation—must, in a few years, build up all the mills we need to supply us with 'domestics.'

"To see what the precise inducements are to start such a mill here, I give the following details of the cost of transporting cotton from its point of production to us and to the New England mill, and of the goods from the mill to us. It is clear that the difference in the first and the amount of the last give the sum of our advantages in this item, at least to the extent of our home market.

"I base my estimates on a mill of 10,000 spindles for convenience, and because that is near the most economical size. It will be borne in mind that the calculation includes machinery for preparing the cotton and weaving the goods.

"At almost any point on the Ohio river the cost of building is less than Massachusetts. We have stone, lime, clay, and generally lumber on or near the spot. There the lumber and lime is brought from Maine; but few positions furnish good clay for brick; and granite is not so easily worked as our lime or sandstone. The moment there is a demand for it, machinery can be made here twenty per cent. cheaper than at the East. The cost now would be nearly this:

The factory building of brick or square stone ruble - - - - -	$30,000
House for superintendent - - - - - - - - - - - - - - - -	3,000
Twelve boarding houses for 225 operatives - - - - - - - - -	10,000
Warehouse and store - - - - - - - - - - - - - - - - - -	2,500
Engine, gearing, and pipes for heating mill, put up - - - - - -	8,000
Machinery at $12 per spindle - - - - - - - - - - - - - -	120,000

Here a working capital, sufficiently large to lay in a stock of cotton for five months, is - - - - - - - - - - - - - - - -	46,500
Capital stock -	$220,000

"This estimate is larger by $20,000 to $30,000 than that made by persons who have far more practical knowledge on the subject than I have.

"The longer the material and its product are *in transitu*, or, in other words, the further the manufactory is from the raw material and the market, the larger must be the working capital; and the interest on the difference is fairly a part of the cost of transportation. And besides, as England and New England are obliged to enter the cotton market once a year, and at the same time, and at the very time when our other great staples are ready for shipment, prices and freights are then generally at their highest rates; sometimes, as we have seen, sufficient means of transportation cannot be had at all; to guard against this contingency, as well as the fluctuations of price, many mills keep a heavy surplus stock. We can command the market at all times, we are always ready to contract, and can select our own time to receive the cotton. We are here also at the point of consumption, we cannot for years supply the home demand, and our goods will be taken as fast as they are made.

"With these facts in view, it is very safe to say that the New England mill requires a working capital of $100,000 more than ours; but, to be altogether within the mark, put it at $50,000; the interest on this is the first item of saving or advantage to be carried out—say per annum $3,000. As we can turn over our capital more than once a year, and its earnings at each time will exceed six per cent., we might with propriety make the item much larger.

"At Lowell there are forty-five mills containing 253,456 spindles, and with a capital of $11,490,000, or over $450,000 for every 10,000 spindles. If $50,000 is deducted for capital required to purchase the power, $50,000 more to cover the difference in communicating the power and the additional cost of buildings, the working capital would seem to be $130,000 over that required here by my estimate. But I am not advised as to how much of this capital is required to enable the mill to sell on credit, or whether the surplus fund, usually laid aside out of profits, is sufficient for this purpose. The Lowell corporations rarely publish the amount of their reserved funds, or even of their profits unless when they are remarkably low.

"The mill in question will turn out, on the average, two tons of goods a day—say 600 tons per annum. The English estimate of waste and loss is one-sixth; our rule gives eighty-nine pounds of goods for 100 pounds of cotton; by this the mill will require 666 tons of cotton per annum.

"The following estimate of the cost of bringing dry goods to Louisville from Boston, *via* New Orleans, was obtained from one of our largest dry goods houses, and I feel confident that the rates are below the average:

Boston wharfage per bale - - - - - - - - - - -	02½
Freight to New Orleans per bale - - - - - - - - -	45
Charges at New Orleans per bale - - - - - - - - -	30
Insurance, 2 per cent. on $60, or on cost and 10 per cent. added - - - - - - - - - - - - - - - -	1 32
Interest *in transitu* 40 days - - - - - - - - - - -	40
Exchange half per cent - - - - - - - - - - - -	30
Freight to Louisville - - - - - - - - - - - - - -	62½
	$3 42
Add average cost on the bale from the mill to and at Boston, at least - - - - - - - - - - - - - - -	40
	$3 82

"The bale, of 4-8 brown cotton, of 750 yards, average cost $60; 3 yards to the pound. This gives over half a cent to the yard, one and a half cent to the pound, and $30 per ton.

"There are, however but few houses that ship by New Orleans, and at times when freights are low; altogether the largest portion of brown cottons and prints brought to the central West come from the Eastern agent or jobber and by the lakes or across the mountains.

"This is the *ordinary* course of trade, and there is no reason why we should not base our estimates on what is usually done, if the same system is likely to continue.

"By these last routes, as every dry goods merchant (wholesale) can satisfy himself by reference to his books, the average freights from the Eastern cities is from two-thirds to three-fourths of one cent per yard. If to this is added the coastwise freight, insurance, interest, profit of the jobber or commission of the second agent, the cost will swell up to, at least, one cent per yard, three cents per pound, or $60 per ton.

"But, as I have often been told, the agent at Baltimore will sell domestics just as low as they can be had at Boston or Lowell, and the Philadelphia jobber will often sell lower to draw in customers, as he relies for his profits on other goods. All very true; but a moment's reflection will satisfy any man of the fallacy of this reasoning. The manufacturer may wish to get rid of his surplus, and find it his interest to pay the transportation to, and the commission of an agent in a remote market, but this does not lessen the actual cost of the transportation or agency. The jobber may entice a customer into his store by selling silver at fifty cents an ounce, but this does not prove that the ounce of silver is actually worth less than a dollar. The same kind of argument is often applied to cost of transportation on our river. The Peytona will ask $5 from a passenger to Louisville who calls her in at Brandenburg, and the price would be the same if he got in at

Cairo; yet the writer on the Western carrying trade would be laughed at were he to state that the cost of transportation from Cairo and Brandenburg, to Louisville was the same. Coal often sells for a less price at St. Petersburg than at Newcastle; yet no one has attempted to show that the shipment of coal a thousand miles lessens its cost, or that St. Petersburg is the proper site of manufactures, because coal was sold there at a particular day cheaper than at the English coal mines. The balance sheet of every business must show the profits or losses in each of its branches. The high prices demanded by the larger boats for way-passengers and freight have introduced the river packets, and the extra costs paid by the Eastern manufacturer are now building up the Western mills.

"To return to the figures: the mill given will consume 666 tons of cotton per annum.

"Freight from the cotton districts of Nashville, Florence, Tuscumbia, and points on the Mississippi river in Tennessee and Arkansas, and on the Arkansas river, are about the same to Louisville as to New Orleans. As the river packets multiply, the rates in this direction will probably be lower. Besides, as our agricultural exports increase, the return boats will run light and charge less. Our mill, then, will save the charges on the cotton at New Orleans and the cost between that city and the New England mill. I have not access to a series of New Orleans prices current, but I presume the following estimate will not be wide of the mark:

Drayage, storage, brokerage, and commission of agent or merchant at New Orleans per bale of 450 pounds - -	$1 00
Insurance on $36, or 8 cents per pound - - - - - -	50
Freight ¾ cent per pound - - - - - - - - - - -	3 38
Interest, forty-five days - - - - - - - - - - - -	27
	$5 15
Or 1 14-100 cent per pound, or per ton - - - - - -	22 00
Add charges in Boston - - - - - - - - - - - -	10
Average freight to the mill - - - - - - - - - - -	2 70
Total per ton - - - - - - - - - - - - - - -	$24 80
666 tons required at $24 80 gives - - - - - -	$17,182 80
Add saving in interest of capital per annum - - -	3,000 00
Add minimum freight on goods or $30 per ton on 600 tons - - - - - - - - - - - - - - -	18,000 00
Minimum advantage - - - - - - - - - - - -	$38,182 80

"But if we add the ordinary freight on the goods, or $60 per ton, we have

the *maximum* advantage of $56,182 80, or an average of $47,182 80 on a capital of $220,000, or near 21 1-2 per cent. per annum. I might add from 1 to 2 per cent. loss on exchange, as the agents of the largest mills usually sell bills at 60 days, and at a discount of from 2 to 3 per cent. to pay for the cotton they purchase at New Orleans.

"Besides, a large amount of cotton manufactured at the East pays a second profit and the costs of a second transportation.

"As I have not access to the exchange accounts of the Kentucky banks, (whose agents invest largely in these bills) or to the books of the New York cotton speculator, or of the Sound steamboats, I cannot make an average of these items of cost, and omit them in the foregoing calculation.

"I say nothing here of the great saving in fuel and in food; to these points and to giving an aggregate of advantages I propose to devote another paper.

"I believe the foregoing estimates are within the truth, and that I have not been able to get at all the items of cost; indeed many of these are of such a character that they cannot well be specified; such, for instance, as the expenses and time of the merchant who goes abroad to make his purchases; occasional loss and delays in receiving goods for which insurance offices and transportation lines cannot be made liable; and all the contingencies to which a trade between distant points is subject.

"It will be noticed that nothing is said here of disadvantages; there are some, and I will endeavor hereafter to state them fairly, and then perhaps you will be surprised to see how few there are and how easily these can be surmounted.

"I have been furnished with the following estimate, which nearly corresponds with the foregoing, and from a source perhaps more reliable than any other in New England. The comparison is between Massachusetts and Pittsburg:

"A mill of 10,000 spindles will turn out 4,000,000 yards of number fourteen sheetings or shirtings and consume 1,400,000 pounds of cotton in one year. The difference in the cost of the raw material and the cost of sending the manufactured goods to the West, including interest, is, as near as can be estimated, *one cent per yard*, or, $40,000 in one year's work.

"If there is but even fifteen per cent. advantage (and I challenge the production of *facts* to show that there is not twenty-five per cent.) in this single item of cost of transportation, how long before our men of capital, who at most, can get ten or twelve per cent. interest on moneyed loans, will engage in manufacturing? It needs but the establishment of a single mill on the Lowell system, and the making of a single dividend, to draw the attention of every man among us who has spare funds sufficient to buy a share of stock.

"The sixth element of a manufacturing district is *a healthy position, and a climate so equable and temperate that man may sustain continuous exertion even in partial confinement.*

"Such is and ever will be the competition in manufacturing, that the mere

operative can expect only a slight advance in wages over the agriculturist. The latter is usually the owner of the soil he tills; he bears exposure willingly for the increased value of his farm obtained by that exposure. He drains the morass, despite of its noxious effluvia, with the prospect of rich harvests on the same site; but the former stipulates for and only receives a stated pay and with no expectation of an advance; to be sure, the 'factory girl' works by the piece, but she knows, before entering the mill, how many pieces she can turn out. Besides, when the ploughman is sick, his place can readily be supplied; but the sickness of the engineer may stop the work of hundreds, and a large capital may lie idle while a substitute is sought for.

"I refer specially to large manufacturing establishments, carried on by associated capital, and under the organization of directors, superintendents, and overseers, of whom the active managers are men of character, and generally men of family, who prefer a liberal and certain income, to the uncertainties of trade or of the learned professions — men who would not for a limited salary risk the climate of Singapore or Spitsbergen.

"Indeed the reasons are too obvious for enumeration why such labor can only be obtained and rendered productive in the temperate zone, and there never was and never will be a manufacturing town at any other than a perfectly healthy position — not even in those countries where labor is constantly pressing for employment. Even after a place (this city for example) has become healthy, it requires years to remove unfavorable prejudices.

"On this river, at least as far down as the lowlands at the confluence of its western tributaries, there are as few permanent causes of disease as exist in any other part of the world; the causes of malaria will soon be entirely removed by the cultivation of its banks, and the constant agitation of its surface by boats; and in a few years bilious fevers will be as rare here as at the east, while we are comparatively exempt from that scourge of the northeastern seaboard, the consumption. There, as experience has shown, the piercing winds, coming unobstructed from the icebergs of the Arctic ocean, bring death to those coming out of the heated rooms of a city or manufactory; but the cold air of the lakes and the mountains is tempered before it reaches us.

Our coal districts are proverbially healthy. Coal smoke is by many believed to be one of the best disinfecting agents, and the usual epidemics of the country have become less fatal when the use of coal has become common; perhaps this is one of the causes why the centers of our cities are always regarded as more healthy than the suburbs.

"The eighth element is *a convenient site, and near suitable building materials.*

"It would astonish one who has never thought of the subject, to calculate the amount of fixed capital expended in grading an uneven site of a city, and in its buildings. The filling up of our ponds and cutting down of our sand hills has been but a mere trifle, when compared with similar expenditures in other cities.

"The splendid Quincy market-house in Boston, and the immense blocks of granite warehouses around it, now stand where ships once anchored; millions of dollars have been paid by New York for the timber and lime of Maine, the granite of Massachusetts, the sandstone of Connecticut and New Jersey—and she has even been obliged to send to New Hampshire and Maryland for brick.

"The very cost of transportation on the building materials, already sent to New Orleans from New England and the Ohio river, would, at many points on this river, build a large manufacturing town, and furnish it with a working capital.

"At our coal fields on the Ohio are the best of building materials—common clay, fire clay, fire stone, and lime stone are on the spot or in the immediate vicinity; while, underlying the coal, is a stratum of sandstone with a single stratification which splits readily, is soft in the quarry and hardens on exposure to the atmosphere. This is now being taken for the construction of the public works at Memphis, and is pronounced equal in durability to the same character of stone used in the construction of Trinity Church, New York, while it is cut more readily.

"Here, then, on the banks of the Ohio and its tributaries, we have *all* the *natural* elements of a manufacturing district: cheap fuel, cheap living, cheap land, cheap stone, clay, and timber, cheap raw materials, cheap transportation, in a healthy country, in the centre of a great market; and, besides, we have good laws and light taxes.

"Where else, in the wide world, are all these advantages found in combination?

"The *artificial* elements of a manufacturing district are *capital; labor and skill* in all the departments depending on each other; *reputation*, or, as it is sometimes termed, good will; and *a condition of society and code of laws adapted to the permanent employment of labor and capital in manufacturing.*

"First, of CAPITAL. There are three distinct epochs in the history of manufactures—

"The *first* is typified by the Arab of the desert with his warp stretched from pegs stuck in the sand, and by the early emigrant at her wheel or loom. The manufacturer here has grown the material and will wear the product.

"The *second* is where one or more unite capital and skill, under some form or other of copartnership, to manufacture what others have grown and others will consume.

"In the west we have reached this stage which (in this country at least) will not admit of a great extension; because partners often disagree, and at the dissolution of the partnership by death or otherwise, the concern has to be re-organized; and because the father is rarely sure that his son will have similar taste or skill to employ capital advantageously in the mill.

"In Europe, society is much divided into castes, and the son is trained up to follow the calling of his father. In France we see the same brand on the wine

cask that was noted a century ago; so in England, the sign of a shop often occupies its place without change through several generations. In such a state of society, joint or family interests may be sufficiently strong to give permanency or profit to a manufactory requiring a large outlay of fixed capital.

"This system was tried at the east and was soon abandoned as unsuitable to our people and institutions, and as soon as it was evident that the business of spinning and weaving cotton could be made permanent and profitable, the shrewd and calculating New Englanders passed to the *third*, or golden age, in manufacturing; and it is to the well considered system of Lowell and his associates, and the working plans drafted by them, that New England is now indebted for her eminent success, and the largest part of her present wealth and importance.

"That system is *the association of capital, protected by liberal charters, and under the management of superintendents of high character, overseers carefully selected, and directors in whom the public have entire confidence.*

"This system, which has worked so well elsewhere, is worthy of our adoption; wherever it has been tried the results have been the same; it has stood the test of a quarter of a century, and it does not require the gift of prophecy to predict the same result here.

"It is admirably adapted to our institutions and the character of our people. It is the *democratic* system, for by it, the hundred dollars of the poor man, invested in the stock of the corporation, draws as large a dividend as the hundred dollars of the rich man; it is the system *safe* for the public, for it requires at the outset a capital sufficient for its purposes and asks no credit; and safe for the stockholder, as he only risks his stock and cannot well be ruined by the mismanagement or knavery of associates; this is the system which gives surety to the operative for his wages and to the agriculturist for the price of the food furnished by him to the operative; and the results of its adoption here will be seen in lessening the cost of fabrics our necessities require—in increasing the amount of our productive capital—in enlarging the number of profitable employments of our young men of capital and enterprise, and in giving us an important home market for our raw materials and provisions.

"The way in which this system works, and *why* it works well, will be seen hereafter; but under it, as perhaps every reflecting man will admit, the west has already abundance of capital for the purpose. It is not expected that our very rich men will leave their comfortable homes for new positions where there are peculiar natural advantages and where manufacturing can be made most profitable; or that they will personally superintend the details of making cotton or any other fabrics; nor can it be expected that they will risk the earnings of years to the management of a distant co-partner or agent.

"To manufacture cotton, or indeed any other great staple, at the most profit, we must do a large business; the cotton mill of 10,000 spindles will make goods probably ten per cent. cheaper than one of 1,000 spindles; the first requires a

capital of, say $200,000; now, it would be preposterous to make the attempt to get a Lexington capitalist to furnish that large sum of money to any man or for any purpose, however great the "paper profits" might appear, or however strong might be the faith of the capitalist in the general profits in the business proposed: it would be equally preposterous to ask two hundred men to contribute $1,000 each, and also their individual skill and labor, to any copartnership concern. But, if you start twenty mills under the guardianship of the same men who so satisfactorily manage our bank and insurance capital, and under the direct superintendence of a man of unquestionable capacity and integrity, and with the checks of treasurer, overseers, &c., where there is no liability beyond the capital invested, and where the stock promises large dividends, you will find the rich man taking his risks in each mill; while the man of less capital will follow the example to the extent of his means. They who construct the buildings or furnish the materials and machinery, and they who wish to sell the goods or obtain employment in or about the mill, will be glad to take all the stock they can afford to hold. Labor and materials to a considerable extent will be equal to money.

"It is said that steam boat capital does not, on the average, pay eight per cent. per annum — yet how easy is it, on any point of our river, to start a boat costing from thirty to fifty thousand dollars — in this the shares are rarely over 1-16 — but in a cotton mill each share would be, say 1-2000. The boat owners are the builders of the hull and engine, the officers and the commission merchant; would it not be far easier to raise the capital of the mill and partially in the same way' with anticipated profits of twenty to forty per cent., and in a business attended with less risk and giving constant employment, and at the same place? Let those who scorn small contributions to great works remember that most glorious of all monuments, the Polish mound, made by a grateful people, of whom each contributed but a spadeful of earth — or the more recent instance of the subscription of half a million of dollars by Irish laborers, which ensured the completion of the western rail road from Boston to Albany.

"It is believed by many that there has been an increase of specie capital in the Mississippi Valley since 1836, of nearly one hundred million of dollars, and that its annual increase is from ten to fifteen millions. It is said by those who have the best means of knowing the facts, that something like five millions of specie are annually brought into the west by European emigrants. Some shrewd calculators make the exports of Indiana and Illinois over their imports from six to seven millions of dollars per annum. It will be remembered that the Government does not now drain us of specie through its land offices, and that we are now nearly freed from eastern land speculators. Our independence is shown in the strength of our banks and the favorable state of our domestic and foreign exchanges. In the interior, the rate of interest has fallen to six and in some sections to five per cent. per annum; while in our cities and large towns our banks furnish all the facilities desired for legitimate business transactions.

"We have so long been dependant on the east for money capital, that it is difficult for us to look for it in any other direction. We have now sufficient strength to stand erect, but have scarcely learned the use of our feet.

"But, perhaps, we are to look to the south for capital, either in money or its equivalent, cotton. The cotton planter for years has been chagrined that he has made less in producing than the New Englander has in manufacturing the cotton; and he will gladly avail himself of the opportunity, now perhaps first presented to him in a practical shape, of making the manufacturers' profit. He could not manufacture in Glasgow or Manchester; and Lowell was too far distant for him to invest in her mills. At home he has not the labor, power, conveniences or skill. The lower Ohio is within his reach, (I refer to the planters on the Mississippi and its tributaries.) Here he can, while overlooking the management of the mill, mingle business with pleasure during the summer. Many may smile at the idea of getting surplus capital from a cotton planter, and may exclaim, mortgages, execution, advances, &c., yet let me assure such that the southwest is in quite a different condition now from what it was ten years since. Let them remember that not only has the cotton crop vastly increased in that period, but that the facilities for obtaining credits in New Orleans have been greatly diminished, while at home there are now comparatively no such facilities. Many of the planters now consign their crop to Louisville, Cincinnati, Pittsburgh, the eastern cities and even to Liverpool, and neither ask nor wish for an advance. Let it also be remembered that the cotton planter has nothing at home to invest his surplus in, save more land and slaves. He has no canals or railroads, houses, or ships to build; he has no banks to deposit his money in even; he does not wish to take mercantile risks or to leave his money long in the hands of those who do take such risks; would he not gladly invest in mills near him, where his own cotton would be spun and woven, and on its way to market and on his way to the springs or his summer residence? Indeed he might find a healthy summer residence within sight of the mill. He would realize the value of his cotton (indeed trebled in value) from the goods before he could get his returns from that consigned to the Liverpool factor.

"This direct consignment is, of course, the most favorable for the planter. When the New Orleans or New York speculator buys the cotton and consigns it, the planter, of course pays, or rather loses, the intermediate profits.

"On this reliance on the south I have not only to state its reasonableness, but the positive assurances of very many planters who have surplus capital, that they and their friends are ready to take stock in cotton mills just as soon as they who practically understand the details of putting up and managing mills, will obtain the charters and superintendents and contractors.

"But we cannot expect cotton mills to leap into existence at once. Several years will be required to erect buildings, obtain machinery, &c. Then the first that are started will make profits to build others; besides, the moment we show

the east that we have systematically and energetically undertaken to manufacture our cotton and hemp, and to eat our corn and pork at home, the building of new mills there will be checked, and the men of capital and enterprise there, who wish to engage in the business, will bring their capital, skill and labor here.

"It will be seen under the next head what of these requisites we may expect from abroad."

ART. III.—THE CHEROKEE ROSE.

The following article, from the pen of Thomas Affleck, of Mississippi, and published in the "Commercial Review," is highly entitled to the consideration of the western farmer. Of the Cherokee Rose, we can say nothing of our own knowledge; nor do we know whether its adaptation to this climate has ever been tested. But from the fact as stated by the writer that it "was not affected" by the severe cold which happened in February, 1835—that being a season of the year when tender plants are most liable to injury from severe frosts—we conclude that it would survive the winters of Missouri. Again, the writer inclines to the opinion that the Cherokee Rose is a native of East Tennessee; if this should be true, it would seem to remove all doubt as to its adaptation at least to the southern part of Missouri and Illinois. If this plant should be found to thrive in the prairies of the west, and should answer the valuable purposes ascribed to it by Mr. Affleck, it is calculated to become a source of incalculable convenience, especially to those of the prairie districts.

Although not intimately connected with the cultivation of this plant, the letter of Mr. Affleck to the Editor of the Commercial Review, contains so many judicious remarks, that we have given it entire, as a proper introduction to the subject.

J. D. B. De Bow, Esq.:

Treatise after treatise has been written and published upon the waste of timber in the common rail fence, where timber is yet to be had for such a purpose; elaborate estimates made of the yearly cost of such fences, in time, labor and material; and endless suggestions as to the best substitute to be employed in different parts of the country. Some propose dry stone walls—than which there can be no better fence, where the materials exist. Others, descanting upon the beauties of an English landscape, in which the neatly kept hedges of hawthorn occupy so prominent and ornamental a place, propose its introduction here for that purpose, and quote the directions of English authors for propagating and planting it. Some again, aware of this having been repeatedly tried, and without success proportioned to the cost, point out the adaptation of different native hawthorns, the crab-apple, honey-locust, osage orange, &c., to different portions of our extensive and varied country. Then we have ditches and sod walls, and patent wooden fences

of many kinds, for the prairie regions, and, last of all, we have it proposed and earnestly and ably advocated by the editor of the American Agriculturist and his correspondents, to do away with fences entirely, every farmer housing and feeding his stock, or herding them on his pastures.

We have seen the substantial *stone dykes* of Scotland, and others after the same model in the Eastern and Middle States, and in Kentucky; the beautiful hedges of hawthorn, crab-apple, holly, beech, &c., in England and elsewhere; and close copies of these in different parts of this country, reared, planted and kept in order by a great expenditure of labor; excellent hedges of the osage orange in Ohio and in Pennsylvania; the utter failures at fencing in the prairies of the West, with sod walls and ditches; and we have tried our hand at almost all of these, in turn, and at every variety of wooden fence, from the last patent Yankee invention, to the substantial post and rail of cypress. But in no country have we seen a fence of any kind so admirably adapted to the climate and existing state of things—so cheaply obtained and easily kept in order—so permanent, efficient and substantial, or more thoroughly tested, than the *Cherokee Rose hedge*. Many years have elapsed since this plant was first employed for the purpose of fencing in South Carolina and Georgia, and in Adams and Wilkinson counties, Mississippi. Excellent fences of it have there existed for a sufficient length of time to have led to its universal use in the Southern States; yet in many parts of those very districts, though timber has become extremely scarce, hedging is but little thought of—and elsewhere it is almost unknown.

This is by no means a rare instance in the history of Southern Agriculture, and, indeed, of the agriculture of the world. Farmers are proverbially slow in adopting improvements—some from indifference, others from a contempt for theoretical and book-farming—terms freely used when any thing out of the old track is proposed—and not a few from ignorance. It has been truly said, that the apothegm got up in the days of ignorance and maintained by her children ever since—"to plant well is better than to theorize well"—has been "an instrument of more mischief than any two-edged sword," and of incalculable disadvantage to the agriculture of the south. "Modest merit too often shrinks before it. Let it be asserted, and asserted without the fear of contradiction," (says the same writer—J. E. Jenkins, in the *Southern Agriculturist*, vol. 7, p. 174,) "that *theory is the incipiency of all acts;* that the first clod of earth that was ever designedly broken for the introduction of seed with the intention of reaping its production, was the effect of speculation and of mental arrangement. To be able to speculate, proves a scrutinizing faculty; and to theorize to success, the highest mental endowment." He remarks, further: "It is easy for the most ignorant clod-hopper to call himself a planter, and no theorist—as if he thereby conferred upon himself some honorable distinction, whilst he heaped upon the head of his neighbor—whose mind elucidated his practice, and who is not unwilling that the world should share with him whatsoever good he can impart—coals of fire and molten lead."

Strong language this, yet how true! No improvement is proposed, no new thing introduced to the planting world, without meeting with severe checks from self-sufficient ignorance. It is on record that the cultivation of cotton as a staple crop, and those who sought to introduce it, were included in the same sneering remark—"a fit crop for a petty farmer, but not for a planter." *Horizontal plowing and the side-hill ditch or guard-drain*, are most valuable instances of "theorizing to success," and require a mind of but very moderate calibre to comprehend their advantages. Yet the first was adopted slowly, and not until whole States had been almost ruined by the old method of plowing up-and-down hill, and is even now unknown in many districts. The latter—the guard-drain, or side-hill ditch—is as yet a thing unheard of by ninety-nine in a hundred of the hill-planters of the South; or, if attempted, without a correct knowledge of those principles without which incalculable harm, instead of good, is done. Yet this most perfect preventive to the washing away of the surface soil and the formation of gullies, has been known and practised with complete success; and full explanations of the principles upon which they should be laid out, and directions for the work, have been published many years ago. And even plantations nearest to others completely protected in this way from washing, are being washed into gullies, and losing what little soil is left to them, without a judicious effort on the part of the owners to prevent it. And thus it is with many other improvements of equal, or even greater, value.

Much of this might be remedied by means of an ably conducted Southern Journal of Agriculture, through which those farmers willing to impart the benefits of their experience—of their "theorizing to success"—may be induced to do so, sustained by the countenance and support of a well-informed, judicious Editor, against the sneers of folly, or detractions of envy and ignorance.

To you, my dear Sir, we must look for a *South-western Journal of Agriculture*. You have established the Commercial Review upon a permanent footing, and under disadvantages and trials of which no one can form a conception who has not gone through the like—and stand forth the able advocate of the commerce, and incidentally, of the Agriculture of the South. You are giving, each month, increased interest and value, with increased size, to the Review. You already include, as remarked, the subject of Agriculture and Agricultural improvement; so it is doubtful whether another and distinct periodical, devoted solely to that interest, great though it be, could be sustained. Nor would it be good policy to attempt it. Would it not, then, be advisable to appropriate a separate and sufficient space in each month's Review, to Agriculture and the Sciences, and interests immediately connected therewith—thus offering additional inducements to the planting community to sustain the Review, not only by their subscriptions, but by their pens? Be assured it would. Think of it. We have heard the plan suggested, more than once, by the friends of the Review.

The following essay is offered you for the proposed department—or as you may

please — with the hope that it may prove acceptable to you and to your readers.

I am, &c., yours,

THOMAS AFFLECK.

"THE CHEROKEE ROSE."

At page 461, of vol. 1, of Terry & Gray's *Flora of North America*, will be found the following description of the plant named as the subject of this article. It is classed amongst the "naturalized species."

"*Rosa lævegata* — (Michx.): very glabrous; branches armed with very strong, often geminate curved prickles; leaves three-(sometimes five-) foliate; leaflets cariaceous, shiring, sharply serrate; stipules setaceous, deciduous; flower, solitary, terminal; tube of the calyx ovoid, muricate with long, prickly bristles. Stem with long flexible branches, capable of being trained to a great length. Flowers very large, white. * * * * * * * * * * *

Thus far for the Botanist. To the Farmer we will offer a more easily understood description.

But first as to the foreign origin of this valuable plant. Messrs. Torrey & Gray, who are high authority, speak positively on this point. Prince, in his Catalogue of Roses, states it to be a native of Persia, but does not give his authority. Its appearance and habits are foreign; yet we would gladly identify it as a native, and think it quite probable that it is so — and offer the following statements in support of that opinion:

The December (1831) number of the 4th volume of the Southern Agriculturist, (Charleston, S. C.,— a most valuable journal, now, alas! no more) contains one of the (previously) unpublished manuscripts of the late Stephen Elliott, "upon the culture of the Cherokee or nondescript Rose as a hedging plant," in which occurs the following passage:

"The history of this plant is obscure. It was cultivated before the Revolution by the late Nathaniel Hall, Esq., at his plantation, near Savannah river, and having been obtained from thence and propagated as an ornamental plant, in the garden of Mr. Telfair, and the Messrs. Gibbons' of Sharon of Beach Hill, under the name of the "Cherokee Rose." It is probable that it was originally brought down from our mountains by some of the Indian traders. Mr. Kin, a most indefatigable collector of the plants of the United States, and I believe a very worthy and honest man, assured me that he had found this rose on or near the Cumberland mountains, in Tennessee. Michaux met with it in the gardens in Georgia, and perceiving it was an undescribed plant, he introduced it into the gardens near Charleston, as a nondescript Rose. Hence it has obtained in that neighborhood the popular, but absurd name of "the Nondescript." In Georgia, it has always retained the name of the "Cherokee Rose."

In the second volume of the American Farmer — that pioneer journal, to which with its veteran editor, J. S. Skinner, we are indebted for more than the non-

reading portion of the farmers of the present day have any idea of — at page 118, is a communication signed "Wm. W. Anderson, Statesburg, S. C. June 16, 1820," from which we quote in support of the same opinion: "*This* is a *native* plant, and has been generally called in South Carolina, *nondescript*. It is now more properly known by the name of Cherokee Rose, on account of its being found in the greatest abundance in the tract of country inhabited by the Cherokee Indians."

We have no facts of our own to offer — but think the above views so clear and positive, that they may safely be advanced in support of the *hope* that the Cherokee Rose may prove to be indigenous to the South, and not an exotic.

The *Rosa lævigata* is an evergreen, approaching to a vine in its habit of growth; the leaves are dark green and beautifully glossy, or shining — hence its specific name. Its long and strong shoots are completely covered with stout and very sharp prickles, curved backwards. The wood soon acquires a hardness which prevents its being browsed upon by any kind of stock — though, during a hard winter, cattle and sheep will pick off the leaves, without injury to the plant. The blossoms, which appear very early in the spring, in vast numbers, are large, single, and of a peculiarly clear and pure white. The flexibility of the long shoots allows of their being laid up into any form or position that may be desired; and as they readily take root when layered, weak places in a hedge are quickly and permanently strengthened: and though inclined, if neglected, to run wild, it bears the knife and shears well, and can readily be reduced again to order whenever desired. We have seen hedges of it occupying a space of twenty feet, and from fifteen to eighteen feet high — picturesque objects in the landscape, but bad marks of neat farming.

We would commend this plant for hedging for the following reasons: for beauty, strength, permanency, facility of propagation and culture, freedom from disease and from injury by stock or insects, peculiar adaptation to our climate and wants, and to farms cultivated by negroes, the rapidity with which it forms a perfect and substantial fence, the exemption of such fences from destruction by accidental fires, and the facilities it offers the planter of forming permanent enclosures without exhausting his supply of timber.

Its Beauty.—This may not, by many, be considered an object of very great importance in a hedging plant, still it has its claims to notice and its advantages. As these are self-evident to those with whom arguments in their favor would have any weight, we shall not offer them, but pass on to the mere utilitarian advantages. The plant is, beyond question, a very beautiful one, especially when in bloom, when it forms one mass of snow-white wreaths, relieved by the rich, dark green of the leaves; and hedges of it may be still further improved, as a means of enriching and enlivening the landscape, by introducing plants of the stronger, freer-growing of the Noisettes and of the various running roses, at the distances of thirty or forty feet in the hedge.

For *strength*, a well kept Cherokee hedge, of strong growth far surpasses any

other kind of live fence; and it is a more efficient protection to crops and stock than any other fence known to us. Unlike other hedges, where the stoutness of the stems of those plants of which they are formed, is the main source of strength to the hedge, this one is so bound together by the interlocking of the long shoots, which have been laid down lengthwise of the hedge, at different periods of its growth, as to be utterly impervious to any animal. We have seen a knowing old bull, lowering his head, and *closing his eyes* to the consequences, force his way through the most compact hawthorn hedges of England; but we feel confident that a well-grown hedge of this rose would turn the Buffalo. In a field thus fenced, sheep are perfectly safe from dogs or wolves, unless these enter at the gate; and hogs may be raised even close by such a neighbor as we were at one time favored with, who cursed his negroes for "a set of worthless, sleepy-headed rascals, who could not pick up pork enough o'night, in such a neighborhood, without compelling him to buy it!" The negroes, belonging to a plantation thus enclosed, find it difficult to ramble much, as they cannot cross these hedges without considerable labor and some risk.

Permanency.—We find that plants and hedges now exist in full vigor and thriftiness, of from twenty to fifty years growth, in various parts of South Carolina, Georgia and Mississippi. No instance has come under our notice, during very extended enquiries and not a little personal observation, of any appearance of a want of permanency, or of the plant dying out from any cause. Unsightly gaps and defective places are by no means rare in even a majority of Cherokee hedges; but these are ascribable solely to neglect and indifference. One half the labor and care bestowed upon an equal number of cotton plants, would keep the young hedge in such a vigorous, growing condition as entirely to prevent gaps.

In *facility of propagation and after culture*, the Cherokee Rose equals corn or cotton. But of this, anon.

Of its *freedom from disease and from injury by stock or insects*, we can speak positively thus far. We may expect, however, that as the plant itself is multiplied, its insect enemies will also inevitably increase — not by *spontaneous generation*, however, but by a natural increase from a natural cause.

No degree of cold experienced in South Carolina or Mississippi affects this plant injuriously. The winter of 1834-'5 was a remarkably severe one and particularly destructive to vegetable life. We find it stated, in a very interesting retrospect of that season, as experienced at Charleston, in the 8th vol. of So. Agriculturist, that during "the end of the year 1834, the temperature was moderate and uniform," which "by rousing the vegetable world from its torpor, prepared the way for that devastation and havoc, which spread far and wide." This continued with no very important change. At nine o'clock, on the night of 6th February, 1835, the thermometer stood at forty-eight degrees. At a more advanced period of the night a very severe change took place, producing showers of sleet which fell at short intervals. "The succeeding day the weather moder-

ated, and although cool, the influence of a bright sun rendered the temperature agreeable until towards evening, when old Boreas sent forth a chilling blast from the North-east, approaching to a pretty severe gale, diminished the temperature down to twenty degrees, at nine o'clock, P. M. This was succeeded by Sunday, the eighth." It was the coldest day ever experienced in South Carolina, so far as recorded. "The thermometer stood, after sunrise, five degrees above *Zero*, leaving scarcely any doubt that it must have been at Zero previous to daylight. The salt-water in the docks and mill-ponds in the neighborhood of the city, was frozen." Green-houses afforded no protection to exotics. Fig trees, myrtles, oranges, etc., etc., as far South as St. Augustine, were cut down to the roots and many utterly destroyed. We presume it was at this time that M. Noisette, whose residence and nursery near Charleston had long been celebrated for their beauty, lost his magnificent collection of Camellias, the growth of many years—planted and nursed by his own hand—and unequalled in size and splendor. The old gentleman, in the morning, gazed upon them, all blasted and killed to the ground; and, it is said, re-entered his house without uttering a word, took to his bed and in a few days, died!

The Cherokee Rose was not affected by this sudden and severe change. It will even thrive as far north as Maryland. The late Mr. C. E. Rowand, of South Carolina, aiming at a great public good, actually distributed some hundreds of parcels of cuttings of this plant, about the year 1820 to '23 to an equal number of his fellow farmers in the Southern States; at the same time publishing in the American Farmer directions for its cultivation, etc.; and requesting, as a very moderate return for so much trouble and expense, that the recipients would report their success or failure, through that journal. Some *half dozen* did so! Poor encouragement to others to follow the liberal example of Mr. Rowand. Through those who did report—Am. Farm., vo. 7—we learn that Mr. Wm. H. Tilghman, Plinlimman, Talbot county, and Edward Stabler, Jr., Harewood, Montgomery county, succeeded in growing the plants; of their success we have no knowledge, after the first three years. We are thus particular, to satisfy enquiries that have been made of us from Pennsylvania and Virginia, and we would be glad to learn if the rose still flourishes at these places.

We have much to say upon its *adaptation for hedging purposes, to the climate and wants of the South, and to farms cultivated by negroes.* Fences we must have. Timber is becoming scarce everywhere; and many districts are so completely exhausted as to be, measureably, abandoned from an actual want of fencing material; the lands being too much worn, under the same wasteful course which destroyed the timber, to repay any outlay for enclosing. Timber, exposed to the weather, decays very rapidly in our climate; so that fences of that material require very frequent repairs and do not last long. The tax upon the labor of a plantation is enormous, even when well timbered; and still more, of course, where much hauling is requisite. Many of the finest plantations on the lower Missis-

sippi have no fencing timber, and cypress pickets have to be purchased for that purpose. Great part of Texas consists of prairie, on which the plant will grow most vigorously, forming an impassable fence in a very few years; and, with the China tree, (*melia azedarach*,) from its hardness, rapidity of growth and excellence for fuel and other economic purposes, will be the means, we confidently predict, of settling up millions of acres of that fine country, which would, without these, remain forever uncultivated, though by no means barren, wastes. Add to these the Pise, or dry clay house, and all the objections to a settlement in that magnificent stock country are done away with. Give Illinois such a plant for hedging, and a tree equal in value, rapid growth and easy cultivation, and she would quickly become the first agricultural State of the Union. As it is, notwithstanding the rigors of her climate and great dearth of timber, she makes lengthy strides towards the first rank.

The advantages of a proper subdivision of plantations by permanent enclosures, are sufficiently apparent. They are the very foundation of all improvement. The many fine tracks of hill-land, in these Southern States, which have had the cream skimmed from them, in repeated crops of cotton and corn, without other rotation and without manure, and have become cut up by gullies and stripped of their timber, might yet be reclaimed for other and highly profitable kinds of farming, by being promptly hedged in before it is too late. They might then, should the owners find it advisable to move their forces on to newer and richer lands, be turned into sheep farms or disposed of to advantage for that purpose. Without fences or fencing materials they are worthless.

Of the rapidity with which a perfect and substantial fence can be formed of this rose, we will only remark, that if properly planted, and tended with a reasonable degree of care, in four years a protecting fence may be dispensed with; and six years growth will render it proof against the most breachy stock.

Having thus enumerated the most prominent and valuable qualities of this plant for hedging purposes, we proceed to name the only objections, we are aware of, to its employment in that way, to any extent.

The great space occupied by an unpruned Cherokee hedge, is the principal objection made to it. But for *this* the plant should not be blamed. If planted, as it always should be, in a straight line, and not following the zig-zag of the rail fence, it can readily be kept within a reasonable limit, say with a base of from three to five feet. And the labor requisite to keep it thus within proper bounds, is not greater than is needed to keep up a rail fence; with this very great advantage, that the trimming may be done at any season of the year when the planter is most at leisure; and even if neglected for years, the only evil arising will be the temporary loss of ground occupied by the encroachment. The harbor afforded to vermin, snakes, rats, rabbits, birds, etc., is, in fact, a serious objection. The difficulty can be greatly lessened by trimming and keeping clean; and still more by providing for the negroes a few small, wire-haired terriers, in place of

the great, worthless, sheep-killing, food-consuming curs, most of them are now permitted to have about their houses.

We have an anxious doubt to express, at this part of our subject, and which we name with much hesitation and after long and serious thought. It is, that the Cherokee hedge will *and does* afford protection to the cotton moth, either in its image or crysalis form, in one and most probably both of which it most certainly hybernates. We throw out this suggestion, as remarked, hesitatingly; as it may prove that we are altogether mistaken; and, in the meantime, many may be, thereby, deterred from doing that which has been already too long postponed. It will not prevent our planting some miles of hedge, this winter.

The mode of planting most commonly pursued, has been to make holes with a spade or other implement, under the rail fence, following the *worm*, and inserting cuttings quite close together, say every three or six inches. By this method the most of the cuttings take root and grow, being kept cool and moist by the lower rail of the fence. Others, also following the *worm* of the fence, plant a short distance from it, putting the cuttings in with a grubbing-hoe. Any plan of hedging which occupies, at the very start, a space of five feet in width, is objectionable. Still more so is the crowding together so many cuttings, by which the plants are weakened at the first, and never afterwards acquire strength, even if tended, to form a substantial fence. The impossibility of tending the young hedge during the three first years of its growth, so as to give it complete possession of the ground, to the exclusion of briars, vines of various kinds, cane, China trees, etc., by which so many of those now growing are disfigured and injured, is even a more serious objection to its being crowded into the fence corners.

In order to have a strong and regular hedge, it is indispensable to have healthy, vigorous plants. These cannot be produced without cultivation and space to each plant. With the Cherokee Rose this is especially the case, as stout and vigorous shoots are needed from the first, that the *base* of the hedge may be composed of such. If consisting of shoots, the delicate growth of crowded plants, these are quickly choked out by those stronger shoots, which those plants that ultimately take the lead throw out, leaving the bottom and middle of the hedge a mass of dead spray.

The method of forming hedges of the Cherokee Rose, which we recommend as the true one, suggested by *theory*, thoroughly tested in *practice*, and now offered as the result of *experience*, is this: Upon a hill-plantation, already under fence, remove the fence; *grub out* every bush, briar, cane, etc., and *cut down* the large trees that will in any way shade or affect the hedge-row; upon the poorer portions apply a dressing of any manure that may be at hand; break up the ground with a good two horse plow, bedding it, to the width of twenty feet, or as wide as practicable; run a heavy harrow two or three times along the bed thus formed, and it is ready for re-setting the fence—which do to one side, so as to allow of the young hedge being tended with plow and cultivator. If the hedge-row em-

braces any new land, it is best to rake or burn off the leaves and twigs, or plow deep enough to mix sufficient earth with the light, leafy matter on the surface, to counteract its chaffiness. Where it crosses any low wet spots, throw up a bank with the spade, leaving a ditch on the lower side sufficient to drain the bank to the depth of from three to four feet. Let all this be done as early in the fall as practicable.

If intended to enclose woodland, to remain as such, a space of *at least* sixty feet must be cleared for the hedge row, as this plant will bear no shade. It is not necessary to fence it in from stock roaming at large, as they rarely injure it. A range of poles, raised two or three feet upon forks, immediately over the plant, will be all sufficient.

River-bottom lands must be drained to grow good hedges. The bank of any ditch that drains the land to the depth of three feet, the contents of which form the bank will answer well. Occasional flooding of two or three days duration we have never found injurious. Standing-water, however would inevitably destroy the plant.

Prairie-land must be broken up *during the previous May or June*, to the width of thirty or more feet; then bed up in the fall, as above directed, preparatory to planting.

At any time, when the condition of the soil will admit, from the first of November until the first of March, but the earlier the better, plant the cuttings. These are to consist of pieces, from twelve to fifteen inches long, of *strong shoots* of the previous summer's growth, cut with a sharp knife or a pair of those stout shears made on purpose for rose pruning and which make a draw cut—*not* chopped into lengths with a hatchet. This may be done during wet weather, assorting the cuttings with the tops all one way and burying them half their length in moist ground until wanted; but it is better to set them out as they are cut from the plants. If the cuttings are to be transported to a distance, they may be packed closely in a box or barrel with alternate layers of moss from old logs made *moist* but not *wet*.

After staking out or marking with a line or otherwise, the intended line of hedge, trundle along it a wheel made of two inch plank, three feet in circumference, in the edge of which is inserted a stout peg, which of course will make a hole every three feet. Let any requisite number of hands with spades, dig small trenches at each of the peg-marks, say fifteen inches long (across the hedge-row) ten inches wide and ten deep. One steady hand follows with a basket of cuttings, and inserts three in each trench, at least two-thirds of their length in the ground, drawing in some of the loose dirt with his foot and pressing it *firmly to the base* of the cuttings. If the soil is good, the trenches may then be filled up, by other hands following with hoes, and pressed down lightly with the foot; but if poor or thin, let the trenches, by all means, be filled up with rich compost, or cow-pen manure, from a cart which should follow the one who plants.

It has been objected to this mode of planting that it entails considerable labor and some care; and that the distance between the cuttings is too great. When the object to be obtained is considered—that of forming a permanent and cheap fence, and within as short a period as possible—the care and labor requisite do not deserve a thought. If true in any instance, that *what is worth doing at all, is worth doing well,* it is assuredly true in this. The writer planted in this manner, filling every trench with compost, at the rate of fully one-third of a mile per day, with five ordinary hands and one cart. The land was very poor, yet the result is a most promising young hedge, without a gap in the whole. The increased distance between the plants is indispensable to a vigorous, hardy growth; not a tithe of the cuttings are needed; the work can be done in a much more perfect manner; and the after tending is materially lessened and facilitated.

Immediately after working over the corn the first time, throw a light farrow to the young rose plants, moulding with the hoe and carefully cutting out or covering every weed and sprig of grass. At the next tending, which should not be delayed long enough to permit any part of the hedge-row to become foul, draw out the extra plants in each trench, leaving only one, and taking care not to loosen the earth round the roots of that one in pulling out the others. The cultivator used twice and the hoes once, after this, will suffice.

At some time during the following fall or winter, let a careful hand cut off, with a sharp knife or a pair of rose-shears, every sprout or shoot, to within a foot of the ground. Early in the spring bed to the plants with a good turning plow, to the width of four feet on each side, previously top-dressing the poor spots with any convenient manure. Once during the summer let the hands lay up the shoots, which will be numerous and strong, lengthwise of the hedge, using light forks, and *pressing the shoots down.* This must be done again in the fall and winter, when the ground on each side should be again plowed. After which no further tending will be requisite, other than to chop down weeds and briars twice during the summer, laying up the shoots snug by, as before, until the hedge has heighth and width of base sufficient. To this it must be limited by the uso of light bill-hooks, with long handles, each winter.

We have had satisfactory assurance that stronger and more vigorous plants are produced from seed than from cuttings; and that the seeds vegetate rapidly under proper management. Seed is produced abundantly; it can be easily obtained and transported to any part of the country, and it can be sowed in less time than cuttings can be properly planted; requiring, however, much more care in the after tending during the first year. Except in the facility of transportation to a distance, not much is gained by the use of seed instead of cuttings. The *hips* must be gathered during November, mixed with two or three times their bulk of sand or mellow earth, and kept in a cool, damp cellar or pit until the beginning of February, when they must be picked or sifted out, and rubbed to pieces, so as to separate the seeds from the husk. The ground having been prepared as for

planting cuttings, half a dozen seeds may be dropped at the distance recommended and covered with half an inch of loose soil, the dropper then pressing the spot lightly with his foot. They will soon sprout and grow, and must be then kept completely clear of weeds—seedling roses will bear *no* shade of that kind. The surplus plants had better be pulled up, leaving only two or three in a place; one only being left, the next spring, to form the hedge.

Unless where their scarcity may render it an object, it is better not to transplant either from seeds or cuttings. Nothing is, otherwise, gained by it, and the labor is much greater than in planting cuttings, Layers make strong plants, but we do not use them, for the reason given above.

We will close by remarking that the cutting and seeds of the Cherokee Rose may be obtained in many parts of the country. In the vicinity of New Orleans, Natchez, Bayou Sara, Baton Rouge and many other points on the Mississippi; and of Charleston, S. C., Savannah, Geo., Mobile, Ala., etc., etc., they can be procured, we presume, without the slightest difficulty and at but trifling expense. To those *subscribers to the Review* who may not be able, otherwise, to procure them, and especially to residents of the prairies of Texas, we will with pleasure forward cuttings or seeds, being put to no expense in the matter. T. A.

ART. IV.—POLITICAL ECONOMY.

In our last number we considered the nature of labor in reference to its physical and moral uses. We also noticed the effects of an unequal distribution of useful employment upon the members of a community, and likewise the importance of directing the application of labor to such objects as are best calculated to preserve and improve the natural wealth of the country.

In resuming the latter branch of this subject, we shall proceed to discuss some of the causes which tend to divert both labor and capital from those employments which we regard as most conducive to the general good.

If we examine the history of the world we shall discover that far the greater part of mankind have ever been more disposed to submit to their condition, than to make any great effort to remove the evils which oppress them. Laws, customs, and pursuits give tone to the sentiment, direction to the genius, and form the habits of the people of every country, and under the operation of these influences, individuals form their plans of life, and schemes of happiness. Hence, the great difficulty of effecting any important change in either their morals or pursuits. We must convince them of their errors and remove their prejudices before they can appreciate the benefits proposed by a change of their condition; and when we have even convinced their judgment, there still remain their strong affection for venerated customs, and the influence of former habits and associations,

which constitute part of their nature, and lie beyond the reach of argument, and can only be subdued or overcome by great minds, or by the influence of some pressing necessity. Indeed, necessity arising from the laws that govern man's nature, may be regarded as among the great agents of civilization. The inherent propensity in man to propagate his species, and the love for his offspring, tend continually to increase the numbers beyond the means of subsistence, so that the physical wants induced by increase of population, call into action the mental faculties which were designed by the Creator to aid man in the discovery of those inexhaustible sources of subsistence which were provided for his support in a civilized state.

It is natural that the first remove from a state of barbarism should be the most difficult, being ignorant of all the arts and advantages of civilization, no desire could arise in the mind of man for its attainment. Hence, even at the present time, a large portion of the earth is inhabited by people who have not yet emerged from the hunter's state. It may be asked, how have these so long avoided that necessity which arises from the increase of population? We answer, by wars of extermination waged between different tribes, for the possession of the best hunting ground, and other barbarous customs calculated to prevent the increase of numbers.

There are three states distinctly defined in the history of man, namely, that of the hunter, the shepherd, and the agricultural—the first two necessarily preceding the era of written history. Consequently, the nature of that necessity which urged a few small tribes to take the initiatory step in the progress of civilization can never be correctly known, and we are left to infer the causes which gave rise to this necessity, from the economy of man's nature, and from the influences which control him in a savage state.

Suppose a peninsular such as Greece, Italy or Yucatan inhabited by one tribe of barbarians, and a more powerful one in possession of the continent in their rear, preventing, by their hostility, the inhabitants of the peninsular from changing their hunting ground. The game upon the peninsular would, in time, become insufficient to support the increase of population. In such circumstances the idea of protecting those animals used for food, from the depredations of the beasts of prey, would naturally occur, and acting upon this suggestion, the transition from the hunter to the shepherd's state, would be easy and natural. But this state could not long continue, for the increase of population would, in time, demand a further increase of food; and necessity, stimulating the mental faculties, reason would point to agriculture as the great source of human subsistence, and man would become a tiller of the ground.

This supposition appears still more plausible when we consider the fact that European civilization made its first appearance in Greece and Italy; and also that the monumental ruins of Yucatan warrant the conclusion that the civil arts which in many respects obtained a high degree of perfection on this continent, had their origin in that peninsular.

It is worthy of observation, that although it would appear that these distinctive states or conditions had been resolved into one by the influence of civilization; yet in its progress from east to west, or we might say in the settlement of all new countries, the elements of these three states of society have a natural tendency to separate. The pioneer is a hunter, feeding upon the flesh of wild animals and clothing himself with their skins; and were he not followed by the other classes it is probable that he would totally abandon the arts of civil life.

Next follows the herdsman, relying upon the spontaneous productions of the land for the subsistence of his cattle. And then comes the tiller of the ground, and in obedience to the divine injunction, extracts the means of subsistence from the hidden treasures of the earth, and thus prepares the way for the artist and manufacturer. But in process of time the game and the range disappear; and for want of these sources of subsistence, the hunter and the herdsman cease to exist as distinct classes. In these migrations from east to west, the manufacturer and the artist remain far in the rear—for the reason that in newly settled and thinly inhabited countries they cannot find that constant and certain employment which is necessary to their prosperity. And from this cause the producers of food, and the producers of clothing, and other comforts of civilized life, become separated at a great distance from each other; and to remedy this inconvenience commerce is constituted the agent of both parties in the exchange of their respective products. This is a natural condition, induced by the progress of civilization from east to west, and until the entire continent shall have been settled by civilized man, the current of commerce must continue to flow in the same direction, carrying with it the manufactures of the east and returning with the agricultural staples of the west. Hence, therefore, commerce may be ranked among the most important elements of civilization, and as such, the principles upon which it is based, and the limit to which it may be encouraged without violence to the prosperity of the producing classes are subjects highly interesting to every class of the community.

Commerce seems to require a local basis of operation, from which, as from a common centre, the distant enterprises flow, and to which the profits return. These great stations attract the capital from every part of the earth within the range of their operations; and the manufacturer and the artist also establish themselves here for the convenience of distributing their wares.

Every extension of the circle of which this basis is the centre, serves to enlarge the volume of commerce and to increase the demand for the products of the manufacturer and artist at this point. Those engaged in commerce do not generally consider that it is of any disadvantage to their interest that the producer and consumer are located at a great distance from each other; nor is it believed that the artist and manufacturer suffer any considerable degree of detriment or inconvenience from this cause, so long as they remain without competition in their respective vocations, at the distant points. But as we proceed from this centre or basis of operation, the inconvenience and disadvantages to the producers of pro-

visions and raw materials continually increase, until finally many articles of great value in the arts, as also many agricultural and horticultural products, by reason of their bulky or perishable nature will not bear transportation to market, and, therefore, cease to be of value to the producer. This is now the case in respect to many valuable products of the Western States, and it is highly important that the true nature of these disadvantages should be understood, to the end, that the best means for removing them should be adopted. The thing most necessary to the prosperity of the west, is a convenient and constant market for the products of the soil; and although this is a fact generally understood and appreciated, yet it does not seem to have occurred to the general mind that it was practicable to create or build up a market at home; therefore, the schemes of amelioration generally have reference either to the extension of trade with foreign countries, or to cheapening the freights and charges between the east and west, by improving the facilities of transportation.

Both these plans are meritorious and worthy of encouragement, but they do not strike at the root of the evil, and will prove to be little better in the end than mere expedients, unless followed up by the introduction and establishment of the arts and manufactures. For were all restrictions removed from foreign commerce, and free trade established throughout the world, still the demand for our great staples would nevertheless soon find a limit in foreign markets; and cheapening transportation to the east would serve to stimulate production in the west, and bring the money-price of western products to their old standard. The cheapening of freight, however, would greatly benefit the country, by diminishing the relative difference between the value of western products and eastern manufactures.

But lower the rate of freights to the eastern markets as we may, still those who reside nearer than ourselves will retain their present relative advantage over the western producer, and, consequently, be better remunerated for their labor.

But the vital objection to an acquiescence in the present state of things arises from the constant drain of the natural wealth of the country. For a continuance in this system of transporting the leading staples in a raw condition to distant markets, must finally exhaust the soil of the west, while it tends to enrich the soil near the great stations of commerce. And thus the agricultural wealth, as well as the mercantile and manufacturing, will, in time be concentrated near the great markets. It is in the power of the people of the west to prevent such a result; and if wise and patriotic, will not wait until driven to act by *necessity*, but with a prudent forecast anticipate the coming evils and guard against them in time.

Manufactures are of slow growth, and many branches require much capital to establish them upon a scale that will make them profitable; while all require the countenance and encouragement of the people of the country in which they are established. This is more especially the case in regard to the handy-crafts. These are the pioneers of this branch of industry, and although less imposing, are in some respects quite as important as the larger branches which require more

capital. For, owing to the large number engaged in the handy-crafts, they constitute a greater body of consumers; and being more generally distributed throughout the country their sympathies are more in unison with the agricultural and other classes.

Any district of country which produces more provisions and breadstuffs than it consumes, possesses the means of encouraging and supporting most of the useful and necessary handy-crafts; for some of the most important of these require little or no capital to commence with—such, for instance, is the case in regard to shoemakers; and yet a very large portion of the shoes and boots worn in Missouri are made in the Eastern States, by operatives who are fed upon bread and meat at about double the price that the same provisions cost in the interior of Missouri—while these articles are, perhaps, made of leather manufactured from hides grown in Missouri and tanned in Massachusetts. Shoes and other articles made of leather may not appear to many as being of much importance, either as an article of manufacture or of commerce; but if we enter into a calculation we shall find that the difference would be very importaut between manufacturing all the articles made of leather in this State, and purchasing them abroad. If we suppose the population of Missouri to be 600,000, and that the average cost of shoeing each individual is $2,50 per annum, the aggregate amount will be $1,500,000, a sum equal, as we believe, to all the specie in the State, except that in the banks. Encouragement to the handy-crafts is the first step towards the introduction of manufactures. If the people of each county would resolve to encourage all such branches of mechanism as their wants required, they would find but little difficulty in procuring the operatives. They should not, however, encourge the settlement here of more operatives in any one trade, than the neighboring country could reasonably support; and each citizen should consider it a matter of duty to employ the mechanic at home, rather than to purchase an article of the same kind, made elsewhere. By adopting this policy, a demand would be created for many articles which never find their way to more distant markets, and most of the money received for the leading staples might be kept in the country.

But these operatives need social encouagement as well as employment. In places where many are congregated together it is natural for them to associate with each other; but in the interior where there are but few mechanics they feel the want of social intercourse, and if they do not receive that consideration which is due to their merit, as citizens, they become discontented, and either fall into vicious habits, or change their place of residence; for few individuals can be contented to remain in a community without its sympathy.

By thus distributing the handy-crafts throughout the entire country, the transportation of a very large portion of the raw material to distant markets would be saved, and while this policy would counteract the constant tendency of capital to concentrate at the great stations of commerce, it would give stability to the pursuits, and prosperity to every part of the country; and in a great measure prevent those

revulsions which so frequently disturb the business and happiness of the community.

But these advantages, although of easy attainment, can not be secured without concert. Without concert and social combinations, no great object ever has been, nor, perhaps, will be affected; the minds of men must be brought to act upon, and with each other; sympathy must prevail, and a desire to consummate one conmmon end must become general; otherwise, individual efforts are impotent and fruitless. No people, perhaps, on earth, have ever occupied a more important position, or been charged with a higher trust than the present inhabitants of the Mississippi Valley. The present population of this region is but the germ of a mighty empire; and it may be said that no part of the globe presents so large and so fertile a district—extending through so many degrees of latitude—and watered by one system of streams—uninterrupted by any of those natural obstacles which have ever been considered as the boundaries of nations; and making enemies of those whom they divide.

Nor has the history of man presented a parallel increase of population to that which has obtained here for the last half century — an increase which is annually augmented, and which, according to every reasonable calculation, will continue unabated until limited or modified by the resources of the country. If this unparalleled increase should be permitted to continue by Him who rules the destiny of nations, the population of the Valley of the Mississippi will number 100,000,000 within seventy-five years from the present date. It is the privilege of the present inhabitants of this vast region to give direction to the policy and morals of a people who, at no very distant day, will equal in numbers the entire population of all Europe. Never before has a comparatively small number of individuals had it in their power to exert so extensive an influence upon the moral destiny of the human family, as have the present inhabitants of this region. But it must be borne in mind that the duties arising from this favorable position are commensurate with this privilege, and demand that the active energies of every individual should be properly applied in giving the best direction to the policy and moral institutions of the country. Then let all men come up to this great work—let us examine with the most rigorous scrutiny every principle which enters into the policy of our institutions, whether civil, political or moral; and while we shall promote our own immediate prosperity by wisely adopting those principles only, which are pure and sound, we shall lay a strong and durable foundation for the happiness and glory of the millions of the future.

In this great work the philanthropist may labor with something more than the mere hope of benefitting his race; for the good which he shall do in the present generation will be multiplied many times in the next, and from the seed which he may sow, shall his children reap an abundant harvest. Here ambition may find a sure road to fame; for the names of the early benefactors of this great Valley, will expand with the mighty increase of its population—and as its boundless re-

sources shall be unfolded—and its moral influence extended throughout the earth—the record of their virtues shall be borne to its remotest bounds, and translated into the language of every land.

ART. V.—MANUFACTURE OF COTTON IN THE SOUTH AND WEST.

We have long entertained the opinion that the manufacture of American grown cotton, would, in time, be transferred from Great Britain and the continent of Europe, to the United States: and that it would ultimately be located principally in the cotton growing region, or in the nearest provision growing districts, where the facilities of transportation and propelling power could be obtained. In making up this opinion, we take no notice of labor, for the reason that it will ever abound where capital and enterprize lead the way, and offer a fair reward, and permanent employment. Within the cotton region, however, labor is already abundant, and by reason of the peculiar institutions of that portion of the Union, it must continue to increase, and become more abundant every year. From our present view of the subject, however, we deem it of little importance to the general interest of the inhabitants of the Mississippi Valley, whether the cotton produced within its limits, shall be manufactured in the cotton or provision region; for the facilities of exchanging the products of the southern and northern portions of this vast region, are so great, that the manufacturing operatives, will, in time, be principally fed by the provisions of the north, whether the mills are located above or below the line of cotton growing, although, in a local point of view, it would doubtless be of advantage to the north if the factories were located in that quarter. Still the Valley of the Mississippi, from south to north, constitutes one community of interest; and extending through nearly twenty degrees of latitude, an active exchange must from the nature of things, always be carried on between the products of the two extremes: and the prosperity of one part must ever contribute to that of every other.

We have been drawn into these hasty remarks by a paragraph from the "Pensacola Live Oak."

"Cotton Mill with Negro Operatives.—We had the pleasure, a short time since, of visiting what to us was a novelty, viz.: a cotton manufactory, the machinery of which is tended by negroes. It is a very neat little mill of about 1,000 spindles, located at Arcadia, a delightful spot in the neighborhood of Milton, and some seventeen miles from Pensacola. The machinery is moved by an ample fall of water, and with thirty-three or thirty-four young colored girls, six or seven colored boys, and two or three white overseers, from the north, turns out some 5,000 yards of excellent domestic, weekly. The mill is in as fine order as any

we have ever seen—the operatives all young, intelligent, and cheerful. They are provided for at one table, and their looks do credit to their fare. They were selected, with care, for this establishment, and probably at an average cost of about $400 each. The mill is owned by a small company of enterprising gentlemen, of this city and vicinity, and has been in operation but little over a year. As an experiment, we are happy to hear it has more than answered the sanguine expectations of its worthy projectors."

We should have been pleased if the writer had gone more into detail, and given his readers some account of the profits accruing from the investment. The account however, if true, and we have no reason to doubt of it, establishes the important fact—which has been long questioned—that negroes can be made efficient operatives in the manufacture of cotton. This point once established, and the price of the raw material remaining at its present low rate for a few years, manufacturing will begin to take deep root in the south and west; and when firmly established, will be sustained against the capital and labor of the balance of the world.

To show that even free labor is also both abundant and cheap in the south, we extract from the "Commercial Review" the following account of the cotton mill established by Mr. Daniel Pratt, in Autauga county, Alabama:

"In other pages of this Review we have spoken of the progress made in manufactures by the people of Alabama.

"A few weeks ago we had the pleasure of passing through their State, and of visiting the remarkable town of Prattsville, a description of which was promised. For this we have the material, its enterprising proprietor having appropriated to us several hours in various explanations throughout his immense establishment.

"Daniel Pratt is a remarkable instance of that success which energy, enterprise and worth of character will every where secure.

"He was born in the northern States, and left Lowell for Savannah, Georgia, where he became engaged in building bridges, but without much success. He removed thence to Alabama, with no other effects than a few chattels, but blessed with an energy which was indeed everything to him in his slender fortunes. We heard an anecdote of his industry at this period, in being discovered before the light of day with a supply of corn, which had been procured for his family. But difficulties such as these were nothing to so dauntless a spirit.

"Mr. Pratt's earliest business in Alabama, was the construction, on a limited scale of cotton gins. This was about 1833 or 1834. His first limited purchase was the privilege of water power. His business gradually progressed in extent and profit. The present site of Prattsville was bought for $20,000 from Joseph May, and contains 2,000 acres. The purchase money was soon realized from the sale of gins, and promptly paid. At this period an old saw-mill and a few indifferent huts were all that existed on the place.

"Prattsville is situated twelve miles north-west from Montgomery, on the west

side of the Alabama river — four miles from the town of Washington, and eight miles from Robinson Springs, a fashionable watering-place. It is on Autauga Creek, from which the county takes its name. 'Autauga,' in the English language signifies 'corn dumpling.' Autauga creek is a bold, clear stream supported by beautiful springs which rise aboui fifteen miles from its mouth. It is the most uniform stream in the world—neither depressed by a protracted drought, nor much swollen by heavy rains. It is, consequently, one of the best character for manufactories, for it can always be depended upon. The fall is pretty rapid, and the water can be worked over every half mile. The banks are bold, and the pine forest making up to the edge, so that there is no swamp near the creek. The woods abound with pine timber, the country healthy, the water good, navigation convenient, and every thing is favorable for the erection of extensive manufactories. The bed of Autauga creek is of a sandstone, generally reaching across — hence the foundation is superior for mills.

"Mr. Pratt's fortunes began to advance from this purchase. His improvements have been extraordinary, and one cannot realize they have been made in so short a period, save by the wand of an enchantress. He has also an interest in a large business house in New Orleans.

"The immense establishments at this place include a large cotton gin manufactory, which completes ten to twelve gins per week. They are shipped to New Orleans and Mobile, for the supply of Alabama, Louisiana, Mississippi and Arkansas. The gins contain fifty saws each, of the value of $3 to $4 a saw. The steel plates for saws are imported from the North, but all the rest of the machinery is manufactured upon the place, in the extensive sawing, planing, mortising, grooving and other departments, conducted by water power. Several saw-mills are employed in getting out necessary lumber for buildings, &c. The Alabama iron we observed in use, in casting railroad axles, some of which it appears are contracted for in Prattsville.

"The cotton manufacturing establishment is a new addition to the premises. It has the power of 3,000 spindles, all of which were not adjusted when we were there. The cost of the machinery for this power is estimated by Mr. Pratt at $40,000, or over $13 the splindle. No part of this cotton establishment has been in operation six months. The persons employed are taken from the country around, men, women and children—families being preferred—who are furnished with houses at small rent and obtain their provisions at the shops and neighboring farms. Average wages $8 per month. There is no difficulty in getting operatives, who soon become expert in the business. Negroes have not been employed from the abundance of other labor.

"The Prattsville Factory, when in operation, will consume 1500 bales of cotton annually. The cotton is bought in the neighborhood. The cloth is of a coarse quality, for which a ready market is always at hand, at ten cents the yard

containing one half pound cotton. Purchases of cotton in the last season were made at nine and a half to ten cents.

"Mr. Pratt's enterprise displays itself in every manner. The town contains two school houses for the children of operatives, and two churches, Methodist and Baptist; two or three stores, a resident physician—but we believe not yet a lawyer—bad taste! A newspaper was seriously thought of when we were there. There are upwards of one hundred and fifty to two hundred hands employed, who receive their wages monthly. Their appearance is healthy and happy. Upwards of forty small buildings have been constructed by the proprietor.

"The private mansion at Prattsville is a splendid structure, with beautiful neighboring grounds. A fountain plays, and various shrubbery is scattered around. The prospect from the building is imposing.

"We have not mentioned half the things at Prattsville worthy of admiration—the neatness, the system, the order, the extent. A single power working every thing—corn, flour, cotton, saw, and every other mill—the appended blacksmithing and carriage establishments, etc., etc.

"In manners the proprietor is unostentatious—simple and republican in his course of life. His energies are indomitable, and his industry knows no impediment or regards no toil. Night and day this man of enterprise may be found at his post. The interior of his mansion is adorned with a large hall and gallery of paintings. Thus are not the arts forgotten. A splendid picture of Rome and St. Peters adorns the hall, executed by our townsman, George Cook, of New Orleans. Mr. Clay appears as large as life, and we understand that Mr. Calhoun and Mr. Webster will be procured to adorn and illustrate in the same style the gallery.

"Prattsville is capable of employing with its water power, 30,000 spindles, and according to the estimate of its proprietor, $1,000,000 will create there a town of 3500 inhabitants, and give employment to them.

"We take leave of this interesting place with regret, our memories of it are so lively. May every fortune attend it in the future! We hope to see it for the south a great manufacturing Lowell, and to see many such Lowells among us. Here is an instance already of an immense fortune amassed by industry and energy in scarce the third of a generation. Who will imitate the example?"

The population of no other country would be more benefitted by the introduction of manufactures, than would the non-slaveholders of the south. The more fertile lands being almost exclusively in the possession of the slaveholders, the former labor under disadvantages from which there is scarcely a hope of escape by agricultural employment; and the establishment of manufactures would not only give them profitable employment as operatives, but would afford them a market for many agricultural products for which there is at present no demand.

In support of these views, and as evidence that the south is becoming awakened

to this subject, we give the following extract from a highly intelligent and practical planter in Alabama:

"If I can get my affairs arranged so as to allow me the control of my time, it would afford me pleasure to write essays for your Journal. I desire to collect some statistics on the subject of *cotton;* the quantity grown in every county; the kind of labor employed; the ratio of increase; the number of hands engaged; the number of spindles now running, and their location; which will show their *distance* from the cotton-fields. I have long entertained the opinion that the spindles should be located in the nearest provision region to the cotton-fields; and the growers and spinners should be identified in feeling and familiar dealers with each other; and the result of this opinion when pursued, is, that we should have spindles enough in the Mississippi Valley to spin the cotton grown in it. The revulsions in trade in England, and the decline in cotton in the last ninety days, are strong proofs to my mind, that we should not allow any "*foreign power*" to have the control of the most powerful product of America. Yet we know that the cotton-growers themselves have been the most violent and influential opponents of this system. Cotton cannot be consumed till spun; therefore the holders of the *spindles* hold the power. Philanthrophy will hail with delight the union of the growers and spinners; for *then*, the naked will be clothed cheaper than at any former period of the existence of man."

The experiment of applying slave labor to the manufacture of cotton, was made some years ago, by Mr. William Doering, at Athens, Georgia, with eminent success; and there can no longer remain a doubt in the mind of any intelligent individual who is well acquainted with the mental and physical character of the black population of the United States, that slave labor can be made as efficient as any other in this important branch of industry.

Considering this fact as established, we conclude that Missouri possesses as many advantages for manufacturing cotton, as any other State of the Union. This is the true provision-growing latitude of the continent, and abounds in iron, coal and water-power; while it is accessible by navigation, open every month in the year to the introduction of the raw material from the plantations of the south.

The institution of slavery, which is generally considered as having retarded the increase of population in this State, may, nevertheless, be made the means of establishing manufactures at an earlier period perhaps than they could have been established without.

Slaves of the proper age may be considered as so much capital in hand; and as such might be advantageously invested in manufacturing stock, and while the profits of their labor would be greatly increased by transferring them from the farm to the cotton mill, the price of the fabric would be reduced to the consumer. Intending to discuss this subject more fully hereafter, we have merely suggested these hints at present for the reflection of our readers in the interval.

ART. VI.—THE COMMERCE AND NAVIGATION OF THE MISSISSIPPI RIVER AND ITS TRIBUTARIES,

CONSIDERED WITH REFERENCE TO THEIR IMPROVEMENT BY THE FEDERAL GOVERNMENT.

"Let it be remarked, that the intercourse throughout the Union will be daily facilitated by new improvements."

"The communication between the Western and Atlantic districts, and between different parts of each, will be rendered more and more easy, by those numerous canals with which the beneficence of nature has intersected our country, and which art finds it so little difficult to connect and complete."—[James Madison's appeal in behalf of the Constitution of the U. S.

"Whenever the annual expense of transportation on a certain route, in its natural state, exceeds the interest on the capital employed in improving the communication, and the annual expense of transportation, (exclusive of the tolls,) by the improved route, the difference is an annual additional income to the nation.—[A. Gallatin's Report of 1808.

In treating the subject of western commerce and navigation, especially in their relations with the Federal Government, we shall, for the sake of perspicuity, as well as convenience, divide it into several chapters.

The first, we will devote to a general view of the nature and extent of the country, including, of course, its navigable streams.

The second, will relate to its history, population, commerce and navigation.

In the third, we will speak of the power and the duty of the Federal Government.

CHAPTER I.

When we speak of western commerce and navigation, we mean that commerce and that navigation, which appertain to the Mississippi river and its tributaries.

That river and its tributaries drain the great central valley of this continent, embracing twenty-one degrees of latitude, and fifteen degrees of longitude, twelve entire States, parts of three others, and two Territories. The States and Territories we include are, Ohio, Kentucky, Indiana, Illinois, Wiskonsan, Iowa, Missouri, Tennessee, Arkansas, Mississippi, Louisiana, and Texas; parts of New York, Pennsylvania and Virginia; and the Minesota and Missouri Territories. This valley comprises, within its limits, 1,200,000 square miles; 768,000,000 of acres, and half the population of the United States. The Rocky Mountains on the West, the line of the British possessions on the North, the Alleghanies on the East, and the Gulf of Mexico on the South, are, in general terms, the boundaries of this vast and magnificent area.

The great river of the valley takes its rise in about latitude 48 deg. north, and discharges its waters into the Gulf of Mexico in latitude 29 deg. 5 min. It flows through a channel 3,000 miles long. Its course is south, nearly 14 deg. east. Its width averages about half a mile. Its width does not increase with the volume of water, but is about the same at Galena, 1,600 miles above the mouth, as at New Orleans, where the volume is six times as great. It is 645 yards wide at Vidalia, Louisiana. It drains an area of 300,000 square miles. Its mean velocity at the surface, for the year, opposite Vidalia, is 1 .88 miles per hour. Oppo-

site St. Louis its velocity is about three miles per hour, and with a fall of about one foot in six miles. Its mean depth, per annum, across the entire channel, at the same place, (Vidalia,) is about sixty feet. At St. Louis it is about twenty-two feet. The mean velocity is reduced about fifteen per cent. by friction against the bottom. The total amount of water discharged, per annum, in cubic feet, is 8,092,118,940,000.* About once in three or four years, the river is closed at St. Louis in the winter by ice, and it has been known to be frozen below the mouth of the Ohio. The season of highest water, above the mouth of the Ohio, is the spring, or first month of summer. The highest point, to which the water has been known to rise, was thirty-eight feet and one inch above low water mark, on the 27th of June, 1844. The obstructions in the river, dangerous to navigation, and requiring removal, are snags, sawyers, sunken logs, stumps, rocks, sand bars and wrecks of steamboats. These occur more or less frequently, from the mouth of the Missouri to New Orleans. The obstructions above the mouth of the Missouri, are the Upper and Lower Rapids.

The Lower, or Des Moines Rapids of the Mississippi, are two hundred and four miles above St. Louis, and beyond the mouth of the Des Moines river, whence they derive their name. Commencing a little above Keokuk, the Rapids extend nearly up to Montrose, or old Fort Des Moines, opposite to which is the town of Nauvoo. The length of the Rapids is estimated at eleven miles, having a fall of twenty-four feet. 'Here' says Professor Nicollet, 'the Mississippi tumbles over ledges of blue limestone, at all times covered with more or less water, and through which many channels have been worn by the action of the current. During low stages of the water, the passage of the Rapids is very difficult, as well in consequence of the shallowness of the water, as the narrowness and tortuousness of the channel, so that the time of practicable steamboat navigation is shortened by nearly three months in the year, which is about the duration of low water in the river.' This, together with closing of the navigation by winter for nearly four months more, reduces the season of practical steamboat navigation to about five months in the year. A system of improvements was commenced by Capt. Lee, of the U. S. Corps of Engineers, under the authority of the Government, and continued with satisfactory results until the appropriation was exhausted.

The Upper, or Rock River Rapids, so named from their proximity to Rock River, are fourteen to fifteen miles long, extending from Rock Island to near Port Byron on the left, and Parkhurst on the right side of the river. The fall, according to Capt. Lee, from the head to the foot of the Rapids, is twenty-five and three-quarter (25¾) feet, and very much of the character of the Lower Rapids. In consequence of the short turns and narrowness of the passes between the reefs, boats cross the current obliquely, and run great risk of destruction. Capt. Lee has demonstrated the practicability of removing these obstacles, so as to afford a

* Prof. Forshey.

safe passage up and down both Rapids, and thus a continuous navigation from the Gulf of Mexico to the Falls of St. Anthony, of 2,200 miles."

The principal tributaries of the Mississippi are, the Red River, the Yazoo, the Arkansas, the White, the St. Francis, the Ohio, the Kaskaskia, the Missouri, the Illinois, the Des Moines, the Rock, the Wiskonsan, the Chippewa, the St. Croix and the St. Peters.

The length of steamboat navigation, upon the principal of those rivers, is about as follows:

Mississippi, from the Gulf to St. Anthony's Falls,	2,200	miles.
Missouri, from its mouth to the foot of the Rapids,	2,000	"
Red River, to head of navigation,	1,100	"
Ohio, to Pittsburgh,	1,000	"
Arkansas, to mouths of the Neosho and Verdigris,	630	"
Illinois, to Ottawa,	250	"
Rock River, said to be upwards of	200	"
Wiskonsan,	300	"
St. Croix,	55	"
White River, to Batesville,	300 to 400	"
St. Francis, about	100	"
Yazoo,	100	"

The Ohio, which, at present, is the most important of the tributaries of the Mississippi, is, including the Alleghany river, 1,200 miles long. At Cincinnati, which is about equi-distant from Pittsburgh to its confluence with the Mississippi, it is 534 yards wide, which may be assumed as its average width. Its annual range there, from low to high water, is about fifty feet; its extreme range on record, sixty-four feet, (at the time of the flood of 1832.) It generally reaches its lowest stages in August, September and October; and its greatest rises in December, March, May and June. For a long distance below Pittsburgh, it is frozen over almost every winter, for several weeks; at Cincinnati it is not thus closed oftener than once in five years on an average. Its current, when low, does not exceed two miles an hour; when at a mean height, three miles, and when higher and rising, four to five miles. Its immediate valley has an average width of one mile.* It has the following tributaries: the Monongahela, Alleghany, Beaver, Kanawha, Muskingum, Hocking, Scioto, Great Sandy, Great and Little Miami, Licking, Kentucky, Wabash, Salt, Green, Cumberland and Tennessee, which drain a region of upwards of 130,000,000 acres—an area three times larger than all New England, and as large as all the Atlantic States north of the Potomac. Of these rivers, the Tennessee is navigable to Chattanooga, 485 miles; the Wabash to Lafayette, 300 miles, and the Cumberland to Nashville, 200 miles.

The Missouri River rises within one mile of the head waters of the great river of Oregon. It opens the "gates of the Rocky Mountains," at a point four

* Cincinnati Gazette.

hundred and eleven miles above the head of its navigation. The following are some of its principal tributaries, each navigable, from one hundred to eight hundred miles:

The Yellowstone River	- - - - - - - - -	800	yards wide at its mouth.	
Chienne	" - - - - - - - - -	400	"	"
White	" - - - - - - - - -	300	"	"
Big Sioux	" - - - - - - - - -	110	"	"
Platte	" - - - - - - - - -	600	"	"
Kansas	" - - - - - - - - -	233	"	"
Grand	" - - - - - - - - -	190	"	"
La Mine	" - - - - - - - - -	70	"	"
Osage	" - - - - - - - - -	397	"	"
Gasconade	" - - - - - - - - -	000	"	"

The length of the Missouri, from its source to its mouth, is 3,096 miles and no substantial obstruction impedes its navigation from its mouth to the falls, 2,000 miles. Considering the Missouri as one river from its sources to the Gulf of Mexico, it is the longest in the world. Its average rapidity is nearly twice that of the Mississippi, as the average level of its valley is nearly twice more elevated than that of the Mississippi. Its waters are turbid, its current impetuous, its channel very changeable, and obstructed by numerous snags, sunken trees, rafts, beds of sand, embedded logs and trees impending from the banks. Ice and drifts render its navigation in the winter impracticable. It is more or less swollen by freshets from February to July. The main annual freshet almost always occur in June or July. For the other six months of the year, the navigation is attended with constant danger and difficulty. The Valley of the Missouri is narrower, more elevated, less subject to inundation, and less cut up by lakes, bayous, lagoons, &c., than that of the Lower Mississippi. But the obstructions of the river are more numerous, and more firmly imbedded. The staple articles produced in abundance, and of excellent quality, upon the banks of the Missouri, are hemp, tobacco, corn, and live stock.

The Yazoo River is in the State of Mississippi, rises on the borders of Tennessee, and runs in a S. S. W. course into the Mississippi river, about 12 miles above the Walnut Hills, and 142 miles above Natchez. It is about 230 miles long, is narrow but deep, and is navigable about 100 miles. It drains a very fertile country, abounding in plantations of cotton. Principal obstructions, snags.

The Red River rises in New Mexico, and flows southeasterly into the Mississippi about 240 miles above New Orleans. Its serpentine course is 1,800 miles, with a narrow channel. It derives its reddish color, which gives it name, from a rich red earth which exists far up toward its sources. About three hundred miles from its mouth drift-wood has collected to such an extent that the river is covered for about 40 miles. Upon this "Raft" as it is called, sediment has been deposited in high water, and vegetation flourishes in many parts as though it were

upon *terra firma*. About nine years ago this raft was nearly removed by the federal government; but its subsequent neglect has been followed by the re-formation of the raft. The river is navigable up to this obstruction, and were it removed, steamboats could ascend 700 or 800 miles farther. The banks of the river are of a very fertile character, and their produce in cotton and indigo, &c., is becoming of great importance in commerce.

The Arkansas River is one of the most important tributaries of the Mississippi, rising in the mountains in latitude 41 deg. north, and running in a south-easterly course 2,173 miles to the Mississippi. It may be navigated with suitable boats 1,981 miles. Steamboats starting about the first of February, and meeting the annual freshet, may ascend that distance. Later in the year the river becomes low, and about 1,500 miles up, the water seems to stand, in dry seasons, in isolated pools, with no apparent current. Some of the streams which are tributary to the Arkansas are navigable a few miles. In seasons of very low water some of those tributaries impart to the waters of the Arkansas a briny taste. In the lower Arkansas the waters are slugglish, the country flat and much cut up with bayous and lakes. The bottom lands along the river are generally fertile, and produce cotton, corn, yams, &c. The mouths of the Neosho and Verdigris rivers, about 630 miles up the Arkansas, are as high as steamboats usually run. In that vicinity are great tracts of excellent land. Above that point, the river spreads to a great width, occupies sandy beds, has low banks, and abounds in shoals, so that it cannot be regarded as navigable more than a few miles for steamboats. Snags, logs, impending trees, sand bars, and occasionally rocks, are the impediments to successful navigation of this river.

The White River rises among the Ozark hills of north-western Arkansas and south-western Missouri, and has a course of about 600 miles, emptying into the Mississippi a few miles above the mouth of the Arkansas river. Its tributaries are numerous. It is navigable for steamboats of a small class upwards of 400 miles. Up to the mouth of Black river, there are but few obstructions, and these could be easily removed. With a little improvement small steamboats could ascend even to the Missouri line, and have good navigation for half the year. There are some very productive lands upon this river. Some of the lands, however, are swampy and require reclamation. Two of the tributaries of this river, the Current, and the Black, have their origin near the iron mountain of Missouri.

The St. Francis River rises in St. Francis and Cape Girardeau counties, in Missouri, and running a southerly course, nearly parallel with the Mississippi, through great swamps, empties into the Mississippi, a few miles above Helena, in Arkansas. It is believed to have been navigable, formerly, for upwards of five hundred miles. Steamboats can now ascend but one hundred to one hundred and fifty miles from its mouth, owing to the obstructions caused by the earthquake of 1811. By that earthquake the original channel of the river was broken up for nearly thirty miles. Imbedded logs and fallen trees have been so closely interwo-

ven across the river in some places, that complete bridges are formed, upon which vegetation grows, and which entirely conceal the channel. The valley of the river became, and remains, a succession of swamps, extending about three hundred miles in length, with a width varying from fifty to seventy-five miles. All arable lands intervening, are said to be of the most fertile description, producing abundant crops of wheat, corn, tobacco, and good cotton. But there are stated to be forty-five townships in the State of Missouri alone, returned as drowned lands, not worth, in their present condition, the cost of surveying them. Yet practical men, well acquainted with the country, believe it to be perfectly feasible to drain those lands, and thus restore to the world, a country and a soil, capable of sustaining a very large population. Little River is one of the tributaries of St. Francis and navigable for a short distance.

The Kaskaskia River, in Illinois, has a course of about 300 miles, and enters the Mississippi a few miles below the town of Kaskaskia. It is navigable in seasons of high water, as far as Vandalia, 150 miles from its mouth, and steamboats often ascend as far as Carlyle, which is 100 miles up. It is 150 yards wide at its mouth, and drains a country which is generally fertile. The chief obstructions in this river are logs and impending trees.

The Merrimac, which enters the Mississippi about fifteen miles below St. Louis, has its origin in the mineral regions of Missouri, and may be ascended by small steamboats, in time of high water forty to fifty miles.

The Illinois is one of the finest and most important streams of the west. It drains an extremely valuable and fertile region, prolific in nearly all sorts of grain, grasses, and stock. It is navigable, at nearly all seasons, except the winter, about 250 miles from its mouth. It enters the Mississippi about twenty miles above the mouth of Missouri. For a considerable distance above its mouth (which is 400 yards wide,) the river is unusually straight, with a gentle current. The chief obstructions in the river are sandbars. Its principal tributaries are, the Kankakee, Des Plaines, Fox, Spoon, and Sangamon rivers, all of them considerable streams. The Sangamon is navigable, when the waters are high, about seventy-five miles, and a steamboat of the larger class has been within a few miles of Springfield. Connected, as the Illinois is now about to be with the great Lakes, by the Illinois and Michigan Canal, it is destined soon to become one of the most interesting and important channels of interior communication in the United States.

The Des Moines River is one of the most beautiful tributaries of the Mississippi. It empties into the Mississippi in latitude 40 deg. 22 min. and has its origin in the Shetek Lakes, near the middle of the Coteau des Prairies. Its course is about 400 miles, and its average descent nearly three feet to the mile, running from N. W. to S. E. It flows through a wide and deep valley, receiving tributary water through deep and long ravines which intersect its shores, and also from the Raccoon Fork, the Lizard and Cedar rivers, Boone's river, and Moingonan's Brother. Upon these waters are many fine lands, some good water power, good carboniferous limestone

for building, and in some places deposits of coal. It may be considered as navigable for steamboats of a small class, one hundred and fifty miles from its mouth, and with moderate improvements, may be made navigable 300 miles. A canal of a little over a mile in length tapping Dry Wood Lake, might be cut which would connect the waters of the Des Moines with those of the St. Peters. Near the mouth of the Des Moines are the towns of Keokuk, in Iowa, of Warsaw, in Illinois, and of Alexandria, in Missouri; the former place having 2,500 inhabitants. These places are also near the foot of the Lower or Des Moines Rapids of the Mississippi, the first difficulties encountered in the navigation of these rapids, being about four miles above the mouth of the Des Moines.

Rock River, which enters the Mississippi in the northwestern part of Illinois, rises in Wiskonsan, and its principal tributary has its source in the rich mineral region of southwest Wiskonsan. It waters one of the finest and most fertile agricultural regions, and is said to be navigable for steamboats of a small class about 200 miles. The principal obstruction in this river, are the Rapids, about three and a half miles from its mouth, upon which the water is not often more than eighteen inches deep. Small steamboats have been up, with some difficulty, as high as Grand Detour, upwards of 100 miles from the mouth of the river.

The Wiskonsan River has its source in the Mini Kette Kittigan Lake. This river and the Fox river, which empties into Green Bay, approach, at one place, within one mile of each other; and from that point to its mouth, 150 miles, the Wiskonsan is navigable for steamboats. A navigable intercommunication could be easily made between the Mississippi and Lake Michigan, by connecting the Fox and the Wiskonsan by a short canal. We are informed that by removing an obstruction at a narrow place called the Dells, and clearing the bed of a few sandbars, the river can be made navigable for about 300 miles. Steamboats are said to have been up as high as Point Boss, which is about 300 miles from the mouth. Large quantities of pine lumber annually go out of this river.

The St. Croix is a beautiful river, and navigable at all times, excepting during winter, fifty-five miles from its mouth, to the Falls. Lumber and cranberries are, at present, the principal articles brought out of it. A regular weekly packet runs in summer, between Galena and Stillwater, twenty-five miles up the St. Croix. Considerable quantities of lumber come out, also, of the Chippewa and Black rivers, which are navigable for short distances.

The St. Peters River, which enters the Mississippi eight miles below St. Anthony's Falls, has a course of 470 miles, and from its mouth to the mouth of the Red Wood, it is navigable for 250 miles. It is a beautiful river and waters a fine country.

The tributaries of the Missouri are very numerous, some of them destined to become of great importance, and deserve a more extended notice than we are here able to give them. We can now only name them. They are the Gasconade, La

Mine, Grand, Osage, Chariton, Kansas, Nishnabatona, Platte, or Nebraska, the Sioux, James, Poncah, or Niobrarah, the Yellowstone, &c.

The tributaries of the Ohio deserve, also, a more extended description. The Wabash, the Cumberland and the Tennessee especially, are streams of great value and interest.

It is difficult to embrace, in a single chapter, a proper view of the vast regions drained by the Mississippi and its tributaries. The physical geography and topography of the country, would fill an ample volume with interesting details. We may remark, in general terms, that it is a world in itself, capable of sustaining almost incomprehensible numbers of inhabitants, and of supplying their wants with the productions of the frigid and the tropical zones, of the east and the west, of highland and lowland: with the results of agriculture, of mining, of forests and fisheries, and of the various manufacturing arts.

Who are the people dwelling upon these streams, what the nature and extent of their pursuits, and what their relations with the government under which they live, will be subjects to be concisely treated of hereafter.

ART. VII.—JENKS AND THOMAS' BAGGING FACTORY.

Among the many manufacturing establishments of various kinds, which have been commenced in St. Louis within the last few years, there is, perhaps, no one upon a more respectable footing, or which is calculated to prove more beneficial to the farming interest of Missouri, than the Bagging Factory of Messrs. Jenks and Thomas.

There is an admirable system of economy developed in the plan of this establishment, that is highly creditable to the proprietors. While the hackling establishment prepares the hemp for market, the tow, which, without this process would be of little or no value if sold with the hemp, is converted into sacking; and is calculated to save a large amount of money which is annually paid for a foreign article. This is as it should be.

The following communication shows the nature and extent of the business done here:

HEMP.

"The amount of hemp received at this port during the past year, shows an increase of some 20,000 bales, over the amount of previous year—which increase, we suppose, may be attributed to the fact, that the crop of 1845 was not all received during '46; but from 2,500 to 3,000 tons was held over, and brought out by the high prices of last year. The quality of the staple, last year, would not generally compare, however, with the previous crop. The growers of this crop, we do not think, usually understand what is for their interest, as well as for the

interest of the manufacturers. The general impression seems to be, that the larger and ranker the growth of the hemp, the better their crop—while such is not the case. If the planters would put from one to two bushels more seed to the acre, they would find their crop not only improved in quality, but increased in quantity. The more stalks grown upon a given space of ground, although the growth is not so large, produces more lint and less stalk, than the thinner and large growth. The demand for Missouri hemp is increasing, and our State will soon be looked to for the principal supplies of both water and dew-rotted. Already have manufacturers commenced locating here. As yet we have but one steam factory in our State, and this is in its infancy. The Bagging Factory of Messrs. Jenks & Thomas commenced operations about eighteen months since, in the northern part of our city, and large quantities of hemp are daily received, and discharged in the form of dressed hemp, bagging and sacking, from their establishment. Their manner of working, or rather, using the staple, is new, not only in the west, but, comparatively speaking, in the country. The hemp, as it reaches them, is in a bad state, (being directly from the brake,) both for shipping and manufacturing; and their first operation is to dress, or hackle the same, which is done by means of large machine dressers, which perform their work nearly or quite as well as the old mode of hand hackling, and with great rapidity, and leaves the hemp in a beautiful condition, being entirely cleared from tow and shives. From the dressers it is received by the press, which is large and powerful, where it is baled, covered, branded, &c., and is then ready for the eastern markets and cordage manufacturers. This room alone requires from three to four tons daily, to keep the machines and operatives employed. The tow taken from the hemp, after passing through the hackling, preparation, and spinning rooms, we at last see converted into sacking and bagging, in the weaving room, where nought is heard but the flying shuttle. By their mode of working, a much better article is produced, than by the old mode of working hemp. Of these finer qualities they turn out twelve hundred yards daily, and arrangements are now making to greatly increase the quantity. During the five months ending September 1st, they had passed through their dressers, 425 tons hemp, and manufactured 180,000 yards of bagging. They have 130 operatives, male and female, and work eleven hours per day. They occupy with their buildings, about 150 square feet, and the machinery is driven by an engine of about fifty horse power. Were it not for this establishment, the amount of bagging sent from this port would be very limited, as our receipts from hand looms on the Missouri and Mississippi are rapidly falling off. Received last year, 145,000 yards, while in 1845 our receipts were 422,000."

We are unacquainted with the culture and management of hemp, but the source whence we received the foregoing communication, entitles the observations of the writer upon that point, to the consideration of the hemp growers of the west.

MINES AND MINING.

MINERAL RESOURCES OF WASHINGTON COUNTY, MISSOURI.

We extract from the St. Louis *New Era* the following communication from FREDERICK WOOLFORD, Esq., of Washington County, Missouri:

Mr. Editor—Much has been said and written about the mineral wealth of Southern Missouri, but I have never seen or heard any observations on the valuable clays and materials which enter into the composition of China or Porcelain wares—necessaries for which we are dependent upon foreign countries exclusively. I desire to call the attention of the public, and of capitalists, through the medium of your useful paper, to the fact that in this county, and in this immediate neighborhood, all the requisite materials necessary for the manufacture of the most beautiful and substantial articles of China, Granite and common, or Liverpool ware, are to be found in the greatest abundance. About three years ago I commenced experimenting, in a small way, with a white ware establishment, assisted by two Englishmen, which I have since given up, as I could not produce the article desired. The clay which was first brought to the factory was so impregnated with iron, which oxydized in a high heat, and appeared on the surface of the ware, and produced a cream-colored ware with fine texture. Prosecuting my researches for a more pure and unadulterated clay, I have at length found, in the more primitive regions of our country, an abundance of pure Kaolin or China clay, of the whitest and finest possible kind, and another species known by potters as the Blue Ball or Pipe Clay. The China clay is found on the south side of the Ozark mountains, among the feldspar rocks; it is found there in every state of decomposition. The pipe clay is decomposing from a bluish-white flint in the mountainous districts. I have subjected them to a severe test by fire, after moulding them as thin as the most delicate article of China ware; and they have stood the strongest test I could expose them to—burning perfectly white and transparent, without crack or flaw; and furnishing a ware that will advantageously compare in whiteness and strength of texture with that brought from any other country

I have found an abundance of Steatite or Soap Stone, which is a sub-species of Mica. I have also found a Pot Stone that will make China ware, in the southern edge of Franklin county, (which is an adjoining county,) without any other mixture.

Feldspar of a good quality, and China Clay, have been discovered in Ste. Genevieve county, as also in this. Silex, Mica, Magnesia and Cobalt have been so repeatedly noticed as abounding in this county, that it is hardly necessary for me to say that they can be had here in any reasonable quantity for the purpose of manufacturing. Some of them are already prepared, and have become an article of exportation from our State. I am satisfied that I can show, in the mountains that surround our valley, all the materials requisite to prepare the best and finest

articles of China, Granite and Delft wares; and the water powers of this country are known to be numerous, affording the greatest facility for the erection of mills to grind and prepare the materials; with the abundance of material with which we are surrounded, why should we be dependent on foreign supply? From the experiments that I have made, I am satisfied that profitable investments of capital can be made in this business, the want of which alone has prevented me from engaging extensively in this branch of manufactory. My object is to invite experience and capital to unite with me in the enterprize, with a full persuasion that it may be made useful and profitable. In making this communication, it is not my object to sell lands or to speculate, but solely with the view of making the business useful and profitable to those who may engage in it.

The specimens of earths and minerals, with the wares produced from them, can be seen at my establishment near Caledonia, Missouri, and every information I possess will be freely communicated to any gentleman who may wish to engage in such business.

Any communication post-paid will be attended to.

FREDERICK WOOLFORD.

[We would suggest to our correspondent that it might be useful to him, and promote his views, if he would send to St. Louis the specimens, samples, &c., which he mentions. We shall be happy to aid him in promoting such objects as he proposes.—*Ed. Era.*]

ARKANSAS LEAD.

We received a few days ago, by the hand of Mr. Wood, a fine specimen of lead ore from the mines now worked by Mr. Moulton. A few days previous, we had the pleasure of conversing with Mr. M., himself, who, evidently, is a practical miner; and lately from the Galena country. Mr. Moulton is of opinion that the prospects for mining here are even better than in the Upper Mississippi region, embracing what has ever been regarded one the richest mineral districts in the known world. The mine worked by Mr. M. is ten miles from town, and one of the greatest advantages in his estimation in these mines is, their contiguity to navigation. But there is another advantage which should not be overlooked—the ore has been analyzed, and has been ascertained to be worth about $70 per ton for the silver, alone, which it contains. It may therefore be regarded as the true Argentine ore of lead. The ore, then, instead of being smelted in the ordinary way, should undergo the process of smelting. While we are upon this subject, we remark that this is not the only locality of lead in our State; this metal is known to abound in several sections.—*Little Rock (Ark.) Gazette.*

DISCOVERY OF A GOLD MINE IN MICHIGAN.

A gold mine has just been found near Tecumseh, Michigan. A correspondent of the *Buffalo Courier* says the mine is situated in the east bank of the river, but a few feet above the water, the bank rising to the height of twenty-five or thirty feet, and so precipitously that the mine cannot be reached from above, but only by crossing the river. The gold is found principally in ore mixed, though it is said to be very rich, and many suppose it will yield 35 per cent. of the pure article. A few lumps have been found, weighing from half an ounce to an ounce and a half, which has been pronounced pure. It is stated that a company has been organized to work it, Messrs. Blanchard, Hewitt, and Blood acting as directors, and that quite a gold mania has sprung up in that section of country.

BRITISH NORTH AMERICAN MINING COMPANY.

The silver mine of the British North American Mining Company, known as Colonel Prince's Location, is attracting considerable notice at present, in consequence of the ascertained extent of the vein, and the exceeding richness of the ore. The *American Mining Journal* states, on what is deemed good authority, that the " vein has been distinctly traced for more than three miles on the north shore of Lake Superior, opposite Spar Island; and that the metalliferous portion is from three to five feet in width. The captain of the mine has sunk a shaft into the silver bearing portion several feet, with increased richness of the ore as he descended; and it would really seem, from the developments already made, that the mine of this company is the richest silver mine in the world. The depth of the vein cannot, of course, be determined; but if the experience of those who have worked silver mines elsewhere can have any application to this mine, the extent of its wealth cannot be well overrated.

We have just seen a number of specimens of ore taken from this mine, which are said to be a fair average of several barrels recently forwarded to the office of the company, in Montreal. They are very rich, containing, we should judge, near twelve per cent. silver. We also saw a bar of pure silver weighing about five pounds, smelted from the ore, and about forty pounds of the ore, which had been roasted and pulverized preparatory to smelting. There is a large force now at work on the mine, and it is the intention of this company to have one hundred tons of ore ready for shipment on the opening of navigation in the spring. A considerable quantity is now on its way to Montreal, where it is daily expected. The annual report of this company was published in the ninth number of the *Mining Journal.*

CONSUMPTION, ETC., OF TEA IN THE UNITED STATES.

The following statement exhibiting the qnantity and value of teas consumed annually from 1821 to 1847, and the amount of duty which accrued on the same from 1821 to 1832, together with the average rate of duty per pound, and its equivalent ad valorem, during the years in which the article was subjected to duty on importation, is derived from the Treasury Department, Register's Office, December. 7, 1847:

Years ending Sept. 30.	Quantity. Pounds.	Value. Dollars.	Years ending Sept. 30.	Quantity. Pounds.	Value. Dollars.
1821	4,586,223	1,080,264	1835	12,331,636	3,594,293
1822	5,305,588	1,160,579	1836	14,484,784	4,472,342
1823	6,474,934	1,547,695	1837	14,465,722	5,003,401
1824	7,771,619	2,224,203	1838	11,978,744	2,559,246
1825	7,173,740	2,246,794	1839	7,748,028	1,871,824
1826	8,482,433	2,443,587	1840	16,860,784	4,059,545
1827	3,070,885	942,439	1841	10,772,087	3,076,332
1828	6,239,681	1,771,993	1842	13,482,645	3,567,745
1829	5,602,795	1,531,460	1843*	12,785,748	3,405,627
1830	6,873,091	1,532,211	1844†	13,054,327	3,152,225
1831	4,654,681	1,057,523	1845†	17,162,550	4,809,621
1832	8,627,144	2,081,339	1846†	16,891,020	3,983,337
1833	12,927 643	4,775,081	1847†	14,221,910	3,200,056
1834	13,193,553	5,122,275			

Years ending September 30.	Duties. Dollars.	Average rate of duties. Cents.	Equivalent ad valorem duties. Per Cent.	Years ending September 30.	Duties. Dollars.	Average rate of duties. Cents.	Equivalent ad valorem duties. Per Cent.
1821	1,442,387 13	31.45	133.52	1827	1,029,360 65	33.52	109.22
1822	1,637,835 02	30.87	141.12	1828	2,138,457 54	34.00	120 68
1823	2,000,754 60	30.09	129.27	1829	1,889,822 75	33.73	123.40
1824	2,587,949 13	33.03	116.35	1830	2,287,364 68	32.28	149.28
1825	2,405,355 02	33.53	107.05	1831	1,478,496 22	31.75	139.80
1826	2,911,188 17	34.32	119.13	1832	1,216,427 30	14.01	58.44

EXPORT OF CORN AND CORN MEAL FROM THE UNITED STATES.

The following table exhibits the quantity of corn and corn meal exported from the United States for fifty-seven years, commencing in 1791 and closing in 1847:

TOTAL EXPORTS OF CORN AND CORN MEAL FROM THE UNITED STATES FROM 1791 TO 1847.

Years.	Corn. Bushels.	Corn meal. Barrels.	Years.	Corn. Bushels.	Corn Meal. arrels.	Years.	Corn. Bushels.	Corn meal. Barrels.
1791	1,713,214	351,695	1810	1,054,252	86,744	1829	897,656	173,795
1792	1,964,973	263,405	1811	2,790,850	86,744	1830	444,109	154,301
1793	1,233,768	189,715	1812	2,039,999	147,426	1831	561,312	207,604
1794	1,505,977	241,570	1813	1,486,970	90,810	1832	451,230	146,710
1795	1,935,345	512,445	1814	61,284	52,521	1833	437,174	146,678
1796	1,173,552	549,286	1815	830,516	26,438	1834	303,449	149,609
1797	804,922	254,799	1816	1,076,614	72,634	1835	755,781	166,782
1798	1,218,231	211,694	1817	387.454	89,119	1836	124,791	140,617
1799	1,200,492	231,226	1818	1,075,190	106,762	1837	151,275	159,435
1800	1,694,327	338,108	1819	1,086,762	120,029	1838	172,321	171,843
1801	1,768,162	919,353	1820	533,741	135,271	1839	162,306	165,627
1802	1,633,283	266,816	1821	607,277	146,318	1840	571,279	207,063
1803	2,079,608	133,606	1822	509,098	131,669	1841	535,727	232,284
1804	1,944,873	111,327	1823	749,034	148,223	1842	600,308	209,190
1805	861,501	116,131	1824	779,297	141,501	1843	672,608	174,254
1806	1,064,263	108,312	1825	869,641	172,723	1844	825,282	247,882
1807	1,018,721	136,469	1826	505,381	187,225	1845	840,184	269,930
1808	249,538	30,818	1827	978,664	158,652	1846	1,826,068	298,790
1809	522,019	57,260	1828	70,492	131,041	1847	17,272,815	945,039

*Nine months, ending June 30. † Years ending June 30.

TO THE PUBLIC PRESS.

Although we propose to publish a Journal of Agriculture, Manufactures, &c., yet it would be unreasonable to suppose that we were acquainted with all the details connected with these several pursuits; or that we could acquire a general knowledge of the business and interests of every part of the country, without the co-operation of others.

Feeling the importanc of opening a correspondence with the agriculturists of the west, we called their attention through the last number of the Western Journal, to the importance of organizing agricultural societies in every county. But aware that farmers are generally slow in their movements in regard to such matters, we respectfully invite the publishers of newspapers to second our views by bringing the subject of agricultural societies before their readers.

Furthermore, we should be pleased if the conductors of the press throughout the west would encourage their readers to furnish them with facts connected with agriculture, manufactures and commerce; including the statistics of the business and population of the towns and villages; the kind of staples which are cultivated in each county—the mines, minerals and water power; and also a general description of the soil, surface and forest.

Such facts would greatly extend the usefulness of the journals of the interior, and make them more desirable to those who reside at a great distance from the place of publication.

A little attention to this subject would enable us to make the Western Journal a complete repository of the statistics of the west, and greatly enhance its value as a book of reference, especially to the publishers of newspapers.

TO AGENTS.

Such individuals as have been requested to act as agents, will please to let us hear from them at an early day.

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Will be furnished with six copies of the Western Journal for fifteen dollars, for the term of one year.

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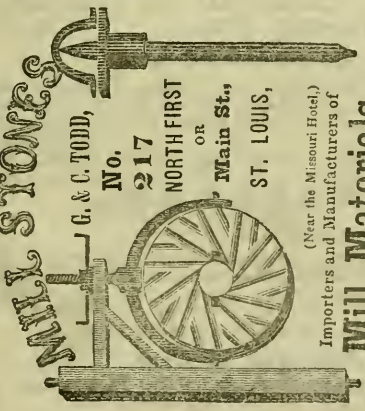

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All tobacco purchased at his house, shall be turned out coopered to the satisfaction of the purchaser, and shall be delivered at any time during the day from sunrise to sunset. March 1, 1848. GEORGE W. JENKS.

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March 1, 1848.

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[Mr. Ellis brings to his business an experience of twenty years; an activity and vigilance uusurpassed. His store presents every variety from the different markets, which can tempt the apetite. Giving his business a personal supervision, he purchases the best articles in market, and sells none but what are satisfactory to his numerous customers. Such enterprize, activity and business habits deserve the patronage of all citizens.—Note by the Editors.

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THE undersigned beg to call the attention of farmers and tree dealers generally, to their extensive assortment of fruit, shade and ornamental trees, as well as shrubbery, green house plants, &c. They have now in growing, over 700,000 trees, shrubs and plants, embracing the most extensive and select varieties ever offered for sale in the west. In calling attention to this establishment they would remark, that they have in view to continue to increase it in extent and variety, to the extent of any and every demand, pledging themselves that all varieties sold will be true to the name. Mr. James Sigerson, who gives his personal attention to this establishment, has spent more than twenty years in collecting the present variety, and during that time, has tested many of them very satisfactorily. Our prices for trees and shrubbery, will be made as reasonable as can be had at any establishment east or west. And when desired, trees will be carefully packed and delivered on board of boats free of charge.

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APRIL, 1848.

VOLUME I. NO. IV.

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ART. I.—THE NATURAL LAWS OF COMMERCE.

Having shown in our last number that the current of commerce has hitherto followed the course of civilization from east to west, we shall proceed to consider some of the causes which are calculated, as we conceive, to give it a different direction in future.

The vast plains and mountains which separate the fertile portion of the Valley of the Mississippi from the productive valleys west of the Rocky Mountains, constitute a barrier to the progress of commerce from east to west; and, although the spirit of enterprise, and the love of adventure will induce many of our citizens to emigrate to the shores of the Pacific, yet, without a rail-way, or some mode of transportation, perhaps cheaper still, it will be impracticable to establish commercial intercourse across the mountains and plains which divide the two regions.

This barrier to the progress of commerce towards the west, will constitute an era in commercial history; for having subserved the purpose of exchanging the agricultural products of the newly settled countries for the manufactures of the old, the current will change from east to west, and in obedience to natural laws, flow from the equator in the direction of the poles, carrying the luxuries of the tropics to the inhabitants of colder climes, and returning with the more substantial products of the temperate zones. Thus, the bounties of Nature will be distributed among the inhabitants of every clime; and while, by the agency of commerce the physical comforts of every region will be increased, those prejudices which are so liable to exist between the people of the north and the south, will be removed, and social intercourse and universal sympathy prevail in their stead.

The great extent, the physical geography, and natural wealth of the Valley of the Mississippi, all point to the adoption of a separate and distinct system of commerce, differing in many respects from all others. Embracing every element

necessary to human subsistence, the west will require but little from foreign countries; and hence, the foreign trade will bear but a very small proportion to the internal commerce.

To give some idea of the tendency of commerce to move on a line from north to south, and the comparative decrease of the foreign trade of the United States, we refer to a tabular statement made by Col. Childs, editor of the Philadelphia "*Commercial List*," showing the number of arrivals at Philadelphia, from foreign ports and coastwise, from the year 1787 to 1848. From this we perceive, that the average number of foreign arrivals, for the five years ending with the year 1805, was 595 ; and that the arrivals from coastwise during the same time, averaged 1,156, for each year; and that for the five years ending with the year 1845, the average annual arrivals from coastwise had increased from 1,156 to 8,125, while the foreign arrivals had fallen off from 595 to 438, showing a decrease of more than twenty-five per cent. in the number of foreign arrivals, and an increase of more than seven hundred per cent. in the arrivals from coastwise. This coastwise trade moves on a line from north to south, and the current is fed by tributaries falling into it from the west. This is the outline of one entire system, embracing all that portion of the United States bordering on the Atlantic Ocean, and when considered with reference to the country east of the Allegheny range, is in conformity with the natural laws which were designed to govern the commerce of the great natural divisions of the earth. But the extension of this system so as to embrace the Valley of the Mississippi, would violate these natural laws, and involve the people of the west in the absurdity of blindly overlooking their own natural channel of commerce, and fasten upon them the original system which was induced by the necessity arising from the "emigrating state" of society, and thus perpetuate the practice of sending our provisions to the Atlantic coast, to feed the operatives employed in manufacturing cotton, wool, and other raw materials of the west, to be returned here for consumption. We should call in question the intelligence and common sense of the people of the west, could we suppose that such a state of things could long exist. The physical geography of the United States indicates two great systems of commerce, in themselves separate and distinct. The one, such as we have described as existing east of the Allegheny mountains—the other, in the Valley of the Mississippi. The latter bounded on the north by the lakes, and the waters which flow into Hudson's Bay, on the west by the Rocky Mountains, and on the south by Central America, and the tropical regions of South America, including the West India Islands. For, although our political jurisdiction extends no farther than the Gulf of Mexico, yet the tropical regions lying directly south of this Valley, must necessarily be embraced in our system of commerce, to give it completeness. This outline embraces every climate inhabitable by civilized man, and affords a direct communication between the two extremes of north and south by the Mississippi river, and the Gulf of Mexico.

This river, dividing the Valley in nearly two equal parts, constitutes the great central highway, and will naturally draw to it the commerce from the east and west. This region, capable of producing every plant and fruit that grows out of the earth—abounding with every useful mineral, and inhabited by an intelligent and industrious race, will require but very little foreign trade, compared to the immense amount of the internal commerce of the country. A large portion of the American people seem to be indelibly impressed with the opinion, that the prosperity and happiness of the country can only be promoted by foreign trade, and appear to have no conception of the importance, or the amount of our internal commerce. Nor can they imagine how the wealth of this country can be increased except by bringing it from foreign lands. Acting under such impressions, they have been continually striving, for the last forty years, to increase the foreign commerce; during which time it has been constantly decreasing—not in the aggregate amount, it is true—but rapidly decreasing when compared with the increase of population and production.

From a tabular statement of the imports and exports of the United States, published in the Merchant's Magazine, it appears that the annual average amount of exports for the five years ending with the year 1805, was $91,472,702, and that the annual average amount for the five years ending with the year 1845, was $111,712,373, being an increase of a fraction over twenty per cent. in forty years, while in the same time, our population increased about two hundred and twenty per cent. In the term of five years, ending with the year 1805, the exports amounted to about $15 43 per annum, to each individual, which was reduced in the last term of five years, to about $6 54 per annum; showing a decrease of exports in proportion to the population of more than one-half. And if our exports and population shall each continue to increase at the same rate for the next forty years, the amount of exports per annum, to each individual, will be reduced to about two dollars.

When we reflect that this change has taken place during a period when the manufactures of this country were in their infancy, and when those of Great Britain were limited only by the want of a demand for their fabrics, we must conclude that this falling off in the exports will be accelerated in proportion to the increase of our manufactures, until the mighty influence which foreign commerce has hitherto exerted over the policy and pursuits of this country shall cease to disturb the public mind.

The same laws which tend to lessen the commercial intercourse between the United States and Great Britain, will also tend to separate the commerce of the Atlantic coast from that of the Valley of the Mississippi, and to establish a distinct commercial system in each. And with a reference to this result, the people of the west should project their plans of internal improvement, and establish their commercial and manufacturing towns and cities. The great emporiums of commerce, and the arts, will doubtless be established in the central region: this is the region

of cheap provision, of coal, and of iron; and besides these advantages, the products of the north and of the south can be more conveniently and cheaply distributed from the centre, than from a point near either extreme. Here, likewise, the works of art can be more conveniently distributed, and here a greater number and variety of artists will establish themselves. But in a country so extensive, and abounding with so many resources, many important commercial and manufacturing cities must necessarily grow up in every important division; yet all connected with, and forming part of one great system.

Notwithstanding we have endeavored to show that the prevailing current of commerce naturally proceeds on a line drawn from the equator, in the direction of the poles; yet we are not to conclude that all commerce must cease between the east and the west. Should this be the case, there would remain but little inducement to social intercourse between the inhabitants of the several continents; and hence one of the great agents of civilization and of the propagation of the christian religion, would be wanting. Such a result, however, has been provided against by the economy of Nature. Owing to the variety of temperature in the same degrees of latitude; to the irregular distribution of mineral substances, and to the genius and peculiar adaptation of the people of different countries to particular employments, there will ever remain a sufficient variety of useful commodities to keep up an active commercial intercourse between the people of every country. This branch of commerce, however, includes little that is necessary to human subsistence, or indeed to the more common comforts. But consists principally of the more curious and costly works of art, designed to gratify the taste and to ornament the person; or of the more rare and delicate products of the vegetable kingdom. And these commodities being of great value, in proportion to their bulk and weight, bear transportation to a great distance, and do not demand those extraordinary facilities of transportation which are required for the great mass of necessary commodities. Such is the nature of Asiatic commerce. And if the predictions of an eminent statesman of the present day should be verified, this commerce is destined, in time, to come from the west, instead of from the east, as at present. This would constitute another era in commercial history. But whether it shall come from the west, or from the south, the great emporium of Asiatic commerce for this continent, is doubtless destined to be established in the Valley of the Mississippi, as the point from which it can be most conveniently distributed to the greatest number of consumers.

We have drawn the outlines of a system of commerce naturally growing out of the relative position and physical geography of the Valley of the Mississippi. To such as see no design in the economy of Nature, it may be considered a fancy sketch; but we have a higher object in view than the projection of fanciful theories for amusement.

Believing that a correct knowledge of the laws of Nature and obedience to their direction, constitute the highest degree of human wisdom, we have aimed, in the

present article, to call the attention of our readers to the elementary principles of commerce. It would be as reasonable to expect that one who daily violates the laws of his physical nature could enjoy health and comfort throughout a long life, as that any people could prosper for an indefinite length of time, without observing the natural laws of *exchange*, which are applicable to the physical geography and natural resources of the country which they inhabit. In a great interior region, like the Valley of the Mississippi, the means of subsistence are derived from agriculture almost exclusively—commerce and the mechanic arts being its agents. The farmer may toil with assiduity—he may be profoundly learned in geology, chemistry and botany, and skilful in the application of these sciences to the culture of plants—he may be temperate in his living, and frugal in all that relates to his own affairs—yet, if these, his agents, should conduct his *exchanges* in a manner calculated to consume or waste one-half the products of his labor, he could not prosper. Therefore, a knowledge of the true nature of commerce is of the highest importance to the agriculturist, and of all classes of the community, he is most interested in giving it a wise direction.

ART. II.—LABOR AND SKILL.

THE first, and, as is supposed, the strongest objection made to the present commencement of manufactories in the west, is the scarcity and high prices of labor.

In view of the millions of acres we have untilled, labor is indeed scarce—but in view of the price obtained for our agricultural surplus products, labor is abundant.

The *money price* of mechanical labor is now actually less in the settled and healthy sections of the west than in New England; the average of wages in all employments and positions is certainly not more than ten per cent. higher. The day laborer in Boston gets one dollar—here, seventy-five cents;—farm hands here, eight dollars to sixteen dollars per month: there fifteen dollars to twenty-five dollars. But this money, thus paid, is the measure of *two values*—first, of wages; and second, of what it purchases for the laborer. In this view, labor is cheaper here than in any country where the bread fruit and plantain do not grow. He who labors for pay, looks at the result of receipts and expenditures of the year, or of life. He can live here equally well at one-third less than in New England and at one-half of what he could in England. He can therefore work here from thirty-three to fifty per cent. less than in the two great manufacturing countries of the world. If we give the same wages, the laborer can lay up from thirty-three to fifty per cent. more here than in those countries; and if he buys land with his earnings, he gets ten, or fifty, or one hundred times as many acres here as he could get there.

All this, says the objector, is very plain; but we have not enough artisans here for the new employment, and if you call them from abroad will they come? The answer is in the fact that whenever and wherever we have furnished profitable and certain employment in the west, the call for labor has been promptly supplied. The operatives in cotton mills have not come, because we have built no mills for them — capital has not come from New England for investment in cotton mills, because it has yielded so large an investment at home; and it has not come from England, because of the distance and the absence of direct communication between the two points and the ignorance on the part of the English manufacturer of our advantages.

We are to look first for superintendents and overseers among our best men. As we can afford to pay very high prices, it is not doubted that the men can be had, and we cannot admit that the Anglo-Saxon here has not as much enterprise and intellect as in the east or in England. The salary of a superintendent of a Lowell corporation ranges from $2,000 to $6,000 per annum, and this commands the highest grade of talent in New England. It takes the lawyer from his practice and the judge from the bench. The average salaries of the Governors of the New England States is $1,208 per annum, and of Judges of the Supreme Courts is $1,415 per annum. $2,000 here is equal to $3,000 there. Will not this price command the same talent here? if not, we have the surplus fund of savings in transportation so to increase the amount until we can draw the Lowell superintendent from the Lowell mill.

For ordinary operatives we have three sources of supply:

First — *domestic.* In the opinion of some fifty manufacturers of whom I have sought information, there will not be the slightest difficulty in obtaining male operatives at home and at as low a rate of wages as that paid in New England, and as little difficulty in obtaining females, if the proper system is adopted. One of the oldest and most successful manufacturers in the interior of Kentucky, says that he has no difficulty in obtaining any number desired for his cotton mill and could increase this number to a great extent. At Cincinnati the supply is greater than the demand, and, at the largest cotton mill there, applications for employment are only received on Monday morning. In Louisville, our clothing merchants, printers, book-binders, paper makers, &c., hire as cheaply as in Boston; and those who have the best means of forming an opinion on the subject, and without an exception, say that the supply of such labor will be greater than the demand.

It may be necessary to state to those who have never seen or read the details of a cotton mill, that it does not require as long an apprenticeship at the spindle or power loom as in most employments; from thirty to sixty days is long enough to give both theory and practice. The average period of residence of the female operatives at the New England manufacturing towns, is only about four years; yet there is more and better work actually done in the same time by these operatives, than is obtained from any operatives in the same employment in the world.

The next source of supply is from the east, and particularly from New England.

Last year Gen. James built in Pittsburg the most complete cotton mill, as is said, in the United States. He furnished not only the machinery, but all the leading operatives from New England. The mill and the operatives are said to work to admiration. This season, as I was recently informed, a large cotton-yarn mill near Cincinnati is to be filled with looms, and the operatives have been engaged at Petersburg, Va.

Although in New England, and perhaps in the manufacturing district of Virginia, such labor is in great demand, and sometimes so difficult to be supplied that emigrants are sought for; yet there is not the slightest difficulty in bringing it here.

Twenty years ago I came from the centre of the cotton manufacturing district of New England, and since have had every means of knowing the feelings of every class of persons there engaged in manufacturing, and I say with knowledge and with confidence, that, were I to go there now and advertise in the newspapers, or even put placards on the guide posts at the road crossings, that I was authorized by responsible corporations, who had made and would conduct cotton mills on the Lowell system, to contract for the immediate employment of male and female operatives for those mills, and at the same wages paid at Lowell, and that the place of employment was at an healthy position on the *free* bank of La Belle Riviere, for every hundred desired there would be a thousand applications.

The father would come because he could exchange his few paternal acres for broad fields in the west; the son would come to a country offering greater freedom of action and a wider scope to his ambitious plans; and the daughter would come from the novelty of change, and because, of the female sex in New England—the supply is greater than the demand.

Is it supposed that New England has sent abroad all her sons and daughters that she can spare, or that have the energy to leave a barren soil and rigorous climate? Offer to her manufacturing class certain and profitable employment and in favorable positions, and the grass would soon grow in her manufacturing towns; and this labor could be had immediately, for the east has, with the most commendable liberality, made easy and cheap the facilities of emigration to us.

The next source of supply is from Europe, and particularly from the manufacturing districts of England. To show that I do not merely rely on conjecture and general reasoning, and at the risk of being tedious, I bring the facts from the best English authority known.

In 1840, a select committee, of which Mr. Hume was chairman, was raised in the House of Commons, to take into consideration the general condition of the manufacturing interests of Great Britain and the policy of modifying its system of import duties. A mass of testimony was given to this committee by the officers of the most important boards of trade, and chambers of commerce, and by

the leading manufacturers. Although neither the committee nor the witnesses stated, in direct terms, that the manufacturing prosperity of England was on the wane, and that she could not, besides paying the cost of transportation, compete with the cheap food and natural advantages of many other countries, (the United States for instance,) which had been her best customers, it is quite apparent that such were their impressions, and that they were only deterred from stating the truth boldly by the fear of giving encouragement to competition abroad. Let the reader judge from the following extracts:

"Your committee gather from the evidence that has been laid before them, that while the prosperity of our own manufactures is not to be traced to benefits derived from the exclusion of foreign rival manufactures, so neither is the competition of continental manufactures to be traced to a protective system. They are told that the most vigorous and successful of the manufactures on the continent have grown, not out of peculiar favor shown to them by legislation, *but from those natural and spontaneous advantages which are associated with labor and capital in certain localities, and which cannot be transferred elsewhere at the mandate of the legislature, or at the will of the manufacturer.* Your committee see reason to believe, that the most prosperous fabrics are those which flourish without the aid of special favors."

That is, when these fabrics are made where the "natural and spontaneous advantages" exist; where, (as in this valley,) God has given all the "special favors" that the manufacturer needs.

"With reference to the influence of the protective system upon wages, and on the condition of the laborer, your committee have to observe that, as the pressure of foreign competition is heaviest on those articles in the production of which the rate of wages is lowest, so it is obvious, in a country exporting as much as England does, that other advantages may more than compensate for an *apparent* advantage in the money price of labor. The countries in which the rate of wages is lowest, are not always those which manufacture most successfully."

For illustration: When cotton is at eight cents per pound, in New Orleans, the difference between its cost to the Louisville and the Manchester manufacturer, for a mill of 10,000 spindles, would be about $25,960 per annum. At our rate of wages, about $25,600 would be paid yearly for labor in the mill. We, therefore, can pay the laborer double price, and be on an equality, if we had no other advantage.

Impost duties were higher in England than in France, yet the Spitalfields weaver had to yield to the weaver of Lyons, because food was cheaper at Lyons than at Spitalfields.

Egypt grows cotton, and the Pacha of Egypt undertook to manufacture it largely; he selected the best cotton and paid his own price for it; he imported the best machinery and the most skilful managers; he gathered the strongest and most active of his Fellahs and Arabs, and brought down slaves from Dongola and

Sennaar, fixed their wages at thirty paras (less than four cents,) a day, and compelled them to labor under the bastinado; but, even in the rudest fabrics, he could not compete at home with the English and Swiss manufacturer; because his laborers were ignorant; because compulsion could not beget ambition to excel; and because rewards, (had they been offered,) which could not be safely invested, and which could be taken away by the same hand that gave, were not inducements sufficiently strong to make the indolent active or to fit the unintelligent for employments which require mental energy and mechanical care.

"And your committee are persuaded that the best service that could be rendered to the industrious classes of the community, would be to extend the field of labor, and of demand for labor, by an extension of our commerce.

"Your committee further recommend, that, as speedily as possible, the whole system of differential duties and of all restrictions should be reconsidered, and that a change be therein effected in such a manner that existing interests may suffer as little as possible in the transition to a more liberal and equitable state of things * * * the simplifications they recommend would vastly facilitate the transactions of commerce," &c., &c.

That is, to rely as their fathers did, and before their manufacturing age, on "the wooden walls of old England." Nature seems to have made the coasts, harbors, and estuaries of Great Britain for a peculiarly maratime people. Here is her *natural* strength. Her energies were partially turned aside from this interest, for half a century, by the inventions of Arkwright, Newcomen, Watt and others, and from the possession of the cheapest fuel *then* known, by which these inventions could be turned to profit. But it is evident that Mr. Hume and his committee think more of the fisheries and the carrying trade than of cotton cloth as the sources of future support and profit to England.

Evidence.—Extracts from the evidence of Mr. McGregor, one of the secretaries of the Board of Trade; Dr. Bowring; Mr. Hume, of the Board of Customs and Board of Trade; and J. Benj. Smith, President of the Board of Commerce of Manchester, and others:

"The German grazier now exchanges his cattle and his beef for fabrics with the home manufacturer, and the corn dealer and miller provide bread for the manufacturer, and use his goods in return; they produce, in most instances, as cheaply as we do, notwithstanding our skill and cheap coal, because they have abundance to maintain life within themselves. The artisan, in the cotton manufacture, can support himself with equal comfort in Germany at half, and in Westphalia, Bavaria, and Austria at less than half, of what it costs the English artisan."

The Germans and Bavarians come yearly to the west, in thousands, attracted by our cheap lands and cheap living—and we have far cheaper coal than can be found in England.

"*The workman of England has to pay, in one way or another, more than half*

his wages in taxation. A workman in Saxony, who is almost entirely free from tax, can live as well upon 5s. a week as an English artisan can live upon 9s. a week."

Yet one of the inducements that the west holds out, and which brings the Saxon emigrant, is light taxes.

"The state of Swiss manufactures is now such that their cotton goods come into competition with ours, and meet us with very great advantages, in our eastern markets: and they are sent to the United States and the Brazils in very large quantities, although the cost of carriage on the cotton must cost them double what the Lancaster and Lancastershire manufacturer pays."

Light taxes and cheap living explain the success of the Swiss manufacturer.

"Of late years there is a tendency for capital and labor to quit this and settle in other countries; in so much so, that all the cotton factories in the neighborhood of Vienna, in consequence of the cheapness of provisions, are in a very fair and prosperous condition; but the directors and foremen of these manufactories are chiefly Englishmen or Scotchmen, from the cotton manufactories of Manchester and Glasgow. We find in France, that the principal foremen at Rouen and in the cotton factories, are from Lancaster; you will find it in Belgium, in Holland, and in the neighborhood of Liege; you find British capital going into France, Belgium and Germany, to a very great amount; and this very British capital employed there producing manufactures which meet us in the markets of the Mediterranean, the United States, Porto Rico, Cuba, South America, and the East Indies."

"Agents are constantly employed in the manufacturing districts, Birmingham, Nottingham, Leeds, Manchester, and Glasgow, in selecting the ablest workmen to go to foreign countries."

"We now cannot export to Switzerland Nos. of yarn under 110; the same process is going on in other countries."

"In Lancaster the wages have not increased with the price of provisions; wages never increase with the price of provisions—they always decline with a rise in the price of provisions, because a high price of food always diminishes the demand for labor, and the rate of wages is determined by the demand for labor."

In England the cotton weaver can do nothing but weave cotton; and his children are taught only to weave cotton. As the manufacturing operative, for several generations, was better paid than the agriculturist, this class has increased so as to outstrip the demand; the producers of food are now fewer than the consumers; the ratio of increase in both is the same, and, in consequence, the price of food must increase, and the means of buying food must decrease.

Here, and under our system, the demand for any particular labor regulates the supply. The four years labor in the mill, instead of incapacitating the operative for other employments, has a very decided tendency to insure him success in other employments. In England, the cotton spinner never expects to be a freeholder, or to marry a freeholder; here the proceeds of labor in the mill are gen-

erally intended for the purchase of land and the necessaries in and about the house of the land owner.

The English rule will continue to obtain there, and, with the modifications suggested, is true here.

"The lower price of provisions induce many people not engaged in manufactures, to settle abroad. There are four or five millions (twenty to thirty millions of dollars,) annually drawn from the incomes of England, spent in France alone, and a great amount in Italy; the city of Naples is almost entirely supported by English expenditure."

Much of this money doubtless goes to support the vices of Paris, but still an enormous amount is paid out by those who seek cheap food abroad.

Now, if the nobleman, with a rent roll of thousands, goes to Italy to save some hundreds, what shall prevent the Manchester weaver from coming here (if he can get the means to remove,) where he can have "a chicken in the pot" every day, instead of only on Christmas and other church festivals? And here, with more and better food, he would do more and better work, and would soon catch the spirit of our own people and fit himself for independence on a farm.

Here are the *facts* which show us what of labor and capital we may expect from abroad, whenever we choose to take the proper means to obtain it. That but little of English capital and of this kind of labor has hitherto come to this valley, is not to be wondered at. I need not quote authorities to show how profoundly ignorant the English generally have been of the west. How few of them who have thought of Kentucky but in connection with the long rifle, and would not rather have trusted themselves to the *crese* of the Malay pirate than to the terrible bowie-knife of Arkansas or Mississippi. Until the last year, when they were so liberally supplied with the corn of Indiana and Illinois, how few of them had ever heard of these States! Within the last twelve months, the lower and middle classes of Europe have acquired more knowledge of us and of our country, than they ever had before. The immense quantities of breadstuffs and all kinds of provisions which we threw on them, on an unexpected demand, astonished them as much as the fall of manna did the Israelites; while the triumphs of our volunteers in Mexico gave them the highest opinion of our population. The contributions we sent them so freely, removed many of their prejudices and disposed them to think kindly of us. The bravery and success of our troops won their admiration. They see that our volunteers can fight as well before stone walls as behind cotton bales. A few years since they would have preferred employment among the French, "their natural enemies," and incurred the necessity of learning a language their class has always despised, to accepting employment here; *now*, thousands of them would gladly come to the land where bread is so cheap and men are so brave.

There is but little of English capital and artisan labor in New England, but the reason is obvious: it will be remembered that, until the last ten years, England

could profitably employ both at home, and since, New England had nearly enough of both; and, besides, the Englishmen and the Scotchmen, when they do go abroad, prefer to go where they can lead, and not where they would be obliged to follow. Here, the position which their capital and skill would take, would not only gratify their pride, but command the desired profits. Our ships built at, and taking their departure from western ports, and laden with western products, will soon be well known at "Lloyd's," and every year will increase the variety and reputation of the products we ship to Liverpool and Glasgow.

The statistics of emigration are even now showing the results of the causes here enumerated.

The efforts of this committee and of the advocates of free trade, and the clamors of the people for the removal of restrictions on imports of food, have vastly changed the policy of England. The taxes on the manufacturer are now lighter and food is cheaper; but, while the church and poor rates are imposed and taxes are actually collected to pay interest on their national debt, it is preposterous to contend that Englishmen can compete with our cheaper food and cheaper power, and nominal taxes, when employed in manufacturing our peculiar staples.

Why is it that the Manchester cotton mill now is not running "full work," when perhaps one-third of the spinners and weavers there are out of employment and would work at the very lowest rates? There is capital enough in England to take all the bonds in the markets of christendom, and, as we have some means of knowing, it asks not the very strongest security. The London Times admits that "the annual saving of the nation over and above its expenses, or in other words, its accretion of capital is not less than fifty millions ($250,000,000) annually; and the London Daily News states that "the banking deposits and lodgments on current account in Great Britain alone. cannot be estimated at less than three hundred millions;" or the enormous sum of one billion five hundred millions dollars!! Now, if the Manchester securities were good—if there was any profit in the Manchester business—we should not have seen the recent long lists of Manchester bankrupts. The iron works of Wales command the funds needed, because they pay good dividends; the railroad calls are paid up, when good dividends are expected; but the cotton dealer and manufacturer, the bankers who dealt with them, and the commission merchants who supplied them with food, were looked on with distrust, and the condition of their assets, as since disclosed, shows that the distrust was well founded.

The London Times further states, "that in the returns for 1847, the imports of flax and hemp, silk, cotton, wool, oil, tallow, &c., show a decline varying from two to thirty per cent."

Now, can a plain man of common sense, and away from the jargon and mystical terms of the writers on finance and political economy, find more than one solution to this state of things? Is not the inference irresistible that, as England has abundance of money and more than an abundance of labor, the cotton and the

hemp would be imported and worked up in increased quantities, if there was profit in the manufacture? The high rate of interest and the rail-road mania can be satisfactorily explained by the fact well known to every man of reflection—that speculations are often rife and that interest on money is always high in a state of transition from one great employment of labor or capital to another.

With such a state of facts, can any one doubt but that we can hire cheap in this foreign market whatever supply of cotton manufacturing labor we desire, from the superintendent and chemist down to the fireman and errand boy, and that we can obtain English capital whenever we show the field for its profitable employment?

The third requisite is—

Reputation or good will, and a condition of society and laws adapted to a manufacturing district.

In other countries the "good will" of a position is often of more value than the capital invested, and reputation of a particular article has frequently outlived for years its intrinsic worth. But, in this country, where so many changes are constantly occurring, that "good will" is rarely set down as part of one's assets, and reputation seldom passes a single generation, and neither has as much influence in fixing the price of cotton goods, bar iron, or common jeans, as of Rodgers' knives or Collins' axes. Whatever of either our western manufacturer deserves and desires to have, can be obtained by the appropriation of a small part of his savings for the use of your advertising columns.

It is admitted that no manufactory can succeed except under the protection of good laws, well administered, and with the influence of a controlling class of society favorable to such pursuits.

There are two kinds of manufacturing employments, and each requires a different position.

Of the population of London, Paris, and New York, perhaps a large majority are really manufacturers, for the jeweller, engraver, shoemaker, milliner, &c., &c., are really as much manufacturers as the weavers of cotton. This class requires and obtains a support from the classes of society who mainly distribute unproductive capital, and congregate in large commercial or fashionable cities. Many also can only find employment of really productive capital in such cities where there is an endless division and sub-division of labor, and where sales are made to order; such, for instance, as the optician, the mathematical instrument maker, &c. These classes need be under no particular discipline. They can choose their own hours for, and places of labor, and, as they work generally for money, they require no special protection from law.

Quite otherwise is it with what we usually term the manufacturing class, those who carry on, or work in, large establishments which require heavy capital, both fixed and active, and where the labor of each operative in each establishment is dependent, on, and is in immediate combination with, the labor of others.

In all such establishments it is generally the fractions of savings in each department that produce dividends or profits. To make these savings, the *human* machinery in the mill should run as smoothly and with almost as little interruption as the iron.

It is mainly to the perfect organization and *esprit de corps* of the overseers and operatives in their manufacturing towns, that the New England manufacturer owes his remarkable success. This cannot be had in places where other interests preponderate.

Manual labor, to be profitable, must be respectable, and even fashionable. The overseer of a cotton, or any other mill is not contented unless his rank in society is as high as that of his neighbor in any other employment. The factory girl works cheerfully and steadily where all her associates have the same hours of labor — the same amusements — the same objects of thought — who live in the same manner, and under the same general rules. Here the necessary restraints are not irksome, because they bear on all alike. To those who have ever been at Lowell and seen the practical workings of a perfectly organized manufacturing society, I refer for the correctness of these positions.

If we adopt the same system, our manufacturing towns or cities will be peculiarly such, and there will be of necessity the condition of society required, and this society will make the code of city polity best adapted to its wants.

So far as general laws are concerned, it will hardly be doubted but that the laws of Kentucky and Indiana are as favorable to manufactures as those of Massachusetts. The Legislatures of these States have always been ready to grant charters, and to pass any law required for the encouragement and protection of such interests; Indiana has now *the very same general manufacturing law* as that which the Massachusetts manufacturer has been so profitably working under for the last sixteen years.

The administration and execution of the law will depend on the character of each district.

As I firmly believe that the Lowell system is the only one which should be encouraged — I had almost said tolerated — in this country, as it is the only one which, while it will ensure large profits to the capitalists and high wages to the operative, is entirely congenial to the spirit of our institutions, and will not bring upon us and entail upon our posterity the thousand political, social, and moral evils, which other systems in other countries have engendered, and as I cannot so well describe what its details are as others have already done, I take the following extracts from a remarkably well written book, prepared with great care by the Rev. Mr. Miles, entitled "Lowell as it was, and is."

**Extracts from "Lowell as it was, and as it is," by Rev. Henry A. Miles: published in* 1845.

A Lowell Corporation.—On the banks of the river, or of a canal, stands a row of mills, numbering, on different corporations, from two to five. A few rods from these, are long blocks of brick boarding houses, containing a sufficient number of tenements to accommodate the most of the operatives employed by the corporation. Between the boarding houses and the mills is a line of a one story brick building, containing the counting room, superintendent's room, clerks and store rooms. The mill yard is so surrounded by enclosures, that the only access is through the counting room, in full view of those whose business it is to see that no improper persons intrude themselves upon the premises.

Thus, the superintendent, from his room, has the whole of the corporation under his eye. On the one side are the boarding houses, all of which are under his care, and are rented only to known and approved tenants; on the other side are the mills, in each room of which he has stationed some carefully selected overseer, who is held responsible for the work, good order, and proper management of his room. Within the yard, also, are repair shops, each department of which, whether of iron, leather or wood, has its head overseer. There is a superintendent of the yard, who, with a number of men under his care, has charge of all the out-door work of the establishment. There is a head watchman, having oversight of the night watch, who are required to pass through every room in the mills a prescribed number of times every night.

This, then, is the little world over which the superintendent presides. Assisted by his clerk, who keeps the necessary records—by the paymaster, who, receiving his funds from the treasurer of the corporation, disburses their wages to the operatives, and not forgetting even the "runner," as he is called, who does the errands of the office, the superintendent's mind regulates all; his character inspires all; his plans, matured and decided by the directors of the company, who visit him every week, control all. He presides over one of the most perfect systems of sub-divided and yet well-defined responsibility. Of course, every thing depends upon the kind of man who fills such a post as this. No pecuniary considerations have ever stood in the way of the appointment, by the corporations, of the best men who could be found. To their remarkable and universally acknowledged success in this respect—to their selection of individuals highly distinguished both for their general force of character, and for their integrity, conscientiousness, and magnanimity, is Lowell chiefly indebted, both for the profitableness of her operations, and the character which she has sustained.

Wages.—Precise statements will hereafter be given of the average pay of male and female hands. Only some general views of this subject will now be offered. Operatives entering the mill, at once receive pay. In other arts they are obliged

*In several of the foregoing articles, reference has been made to the Lowell system. These extracts, from the very clever book of Mr. Miles, show what that system is, how it works, and *why* it works well.

to go through some expensive process of learning. The young woman from the country, employed at first as a spare hand, and a pupil to the business, receives fifty-five cents per week, besides her board. Thus the companies educate nearly all their hands, and as these hands are entirely changed every few years, they have at all times thousands in their pay as mere learners. The female operative will, in a few months earn four and six pence, one dollar, one dollar and a half, per week, according to her dexterity and diligence. While the average pay of all female operatives is, at the present time, about one dollar and ninety-three cents per week, besides board, instances are not uncommon of their earning three and four dollars per week.

ART. III.—THE DISCOVERY, THE FIRST SETTLEMENTS, AND THE FIRST LAWS OF THE MISSISSIPPI VALLEY.

BY EVANS CASSELBERRY, ESQ., A MEMBER OF THE ST. LOUIS BAR.*

De Soto, the Spanish Governor of Cuba, crossed over to Florida with a small army for the purpose of making discoveries, and of searching for gold. He proceeded to where Mobile now stands, and thence a northwest direction, and on the 25th of April, 1541, reached the *Mississippi river!* twenty or thirty miles below the mouth of the Arkansas; and from this circumstance immortalized his name by being the first discoverer of this great river. (*a.*) He crossed this river, and went up its west bank to a place near Little Prairie, not far from where New Madrid now stands. From this place he sent some of his company to examine the regions to the north, who, it would seem, wandered to the *Missouri river*, and then returned. De Soto then turned northwest, and went more than two hundred miles, and then went southward, crossing White River, Arkansas, and several smaller streams, and finally returned to the Mississippi again, some distance below where Natchez now stands, and there died. After his death, his company, under Moscaso, who succeeded De Soto in command, went a southwest direction to Nachitoches, an Indian town on Red River; and again returned to the Mississippi, and constructed small vessels, and descended this river to the Gulf of Mexico, in July, 1543—being the first discoverers of the *mouth* of the Mississippi.

That part of the Mississippi forming the eastern boundary of the State of Missouri, was not discovered until long after the expedition of De Soto. It was re-

* Mr. Casselberry compiled a work, containing so much of the Spanish laws, and the laws of Congress, as relate to land titles in Missouri. Not being able to bear the expense of publishing the work, he applied to several gentlemen for assistance, but without success. He then applied to the Legislature of Missouri, at the last session, and the proposition to grant him the necessary assistance was lost by only *one* vote. We have been permitted to copy the above article from one of the chapters of his unpublished work, which will be found very interesting to the general reader. It is predicated on evidence obtained from the most approved source.

(*a.*) 1 vol. Bancroft's History, page 41 to 59; Perkins' Western Annals.

served by Providence to be accomplished by Joliet, of Quebec, of whom there is no record, but of this one excursion, that gives him immortality; and by Marquette, who, after years of pious assiduity among the savages in the vicinity of Lake Michigan, entered, with equal humility, upon a career which exposed his life to perpetual danger, and, by its results, affected the destiny of nations. They were both Frenchmen, and acting for their country. They went from Lake Michigan up Fox river, and then down the Wisconsin, and on the 17th of June, 1673, discovered the *Mississippi!* at the mouth of the Wisconsin, and about the first of July, discovered the *mouth* of the Missouri, and continued down the Mississippi some distance below the mouth of the Arkansas, and then returned and went up the Illinois river, and discovered all that country in July, 1674. (*b.*) Between the years 1679 and 1681, La Salle and Hennepin, made many other discoveries of countries and rivers, in the Mississippi Valley; and La Salle and his company, in the year 1682, descended the Mississippi to the sea, and claimed the territory for France, and gave it the name of *Louisiana.* (*c.*) France, some time after, took possession of the country and began its settlement. All that part of the country which includes the present State of Missouri, and probably some part of Arkansas, was called by the French and Spanish in their legal proceedings, the establishment or country of Illinois; and sometimes, Western Illinois, in the province of Louisiana, which may be seen stated in the old land titles at St. Louis; but in popular language it was usually called "Upper Louisiana."

The first *settlement* made in this great Valley of the Mississippi, was by the French, at Kaskaskia, about the year 1684. (*d.*) They, about the year 1699, settled Cahokia; and they, also, settled Natchez in 1700; New Orleans in 1718; Vincennes in 1735; Ste. Genevieve about the year 1755; St. Louis, February 15th, 1764; and many other places were soon after settled by them in rapid succession.

On the 14th of September, 1712, thirty years after the country had been taken possession of by La Salle, the French King granted to Sieur Antoine Crozat, the *government* of this country, naming it Louisiana, with certain exclusive pecuniary privileges to Crozat, as an inducement for him to undertake the enterprise of settling it. This is the first *government* that was ever established by the Europeans in the Mississippi Valley. France had thus long postponed the matter in consequence of the wars in which she was continually involved in those times. (*e.*) In this grant of the French King, the *laws, usages and customs!* of Paris were introduced into Louisiana in express terms. These were also the first *laws* of civilized society that were ever in existence between the Gulf of Mexico and the Falls of St. Anthony. These laws, usages and customs were principally copied from the Roman civil law.

(*b.*) 3 vol. Bancroft's History, 157; Perkins' Western Annals.
(*c.*) 3 vol. Bancroft's History, 168; Perkins' Western Annals.
(*d.*) 3 vol. Bancroft's History, 195; Perkins' Western Annals.
(*e.*) 2 vol. White's Rec., 188.

Crozat began small settlements on Red River, Alabama, Coosa, and Tallapoosa, but the expensive wars with the Indians, and other difficulties, induced him to surrender his charter on the 23d of August, 1717.

On the 6th of September 1717, the lands and government of Louisiana were granted by the French King to a corporation called the "*Western Company.*" This Company surrendered their charter, and undisposed-of lands to the French King on the 24th of January, 1731. They only granted one tract of land in Missouri, that we have been able to find. (*f.*)

After the surrender of the charter of the Western Company, Louisiana was governed by officers appointed by the King of France, and their lieutenants, deputies, and sub-delegates, and other interior officers, during the remainder of the time the French held the country.

As there are no land titles in Missouri, that originated during the time the French held the country, nor during the time the French laws, usages, and customs were in force, we do not deem it necessary to say any thing further about the laws, powers, jurisdictions, and proceedings of the French government, except that the laws, customs, and usages of Paris, adopted during the administration of Crozat, and the ordinances of the kingdom, were observed in Louisiana while it remained under the dominion of France, and by them all civil and criminal suits were determined.

This state of things existed until the month of August, 1769, when Count O'Reilly took possession of the country, in the name of the King of Spain, in virtue of the treaty of cession, which France had made to that power. It is well known, that this treaty, though concluded and signed on the 3d of November, 1762, was not made public before the 23d of Apirl, 1764; and that Spain did not take actual possession of the country before the year of 1769, when Count O'Reilly arrived, vested with extraordinary powers, and at the head of three thousand regular troops. The disaffection which the inhabitants of the country manifested when they heard of the treaty of cession, and that they were to pass under a foreign government; and the opposition which they intended to make, as it was supposed, to the landing of the Spanish troops when they arrived at the mouth of the Mississippi, gave rise to excessively rigorous measures against them, on the part of O'Reilly; one of which was to cause to be arrested, twelve of the most respectable citizens of New Orleans, six of whom paid with their lives, for the affection which they had shown for their mother country, while two others were thrown into dungeons at Havana. It was under these circumstances that O'Reilly issued a proclamation, changing the form of the government of Louisiana, abolishing the authority of the French laws, and substituting those of Spain in their stead.

These proceedings of O'Reilly, (in abolishing the laws, usages, and customs of

(*f.*) Renaut's claim at the mouth of Big River, on the Merrimack. See vol. 2, White's Rec., p. 415.

the French, and substituting those of Spain in their stead,) were fully recognised, and confirmed, by the Spanish government at home, on the 24th of March, 1770; (*g*) and thereby making the proceeding valid, and binding from the beginning; but on examining the commission of O'Reilly, we find that he had sufficient power without any subsequent recognition or confirmation being necessary.

The proclamation of O'Reilly was accompanied by an ordinance establishing the several branches of the new government of Louisiana, and defining their respective powers, and appears to have been published on the 26th of November, 1769. From the time of its promulgation until now, the French laws ceased to have any authority in this country, (*h*) and all controversies were tried and decided conformably to the Spanish laws, by a tribunal, of which the governor was the supreme judge in Lower Louisiana; and the lieutenant governor, subject to the control of the governor, was the supreme judge in Upper Louisiana, though they were bound to take the advice of a lawyer appointed and commissioned to that effect, by the King of Spain, and called the Auditor of War; and the commandants of the several posts were the inferior tribunals. From all the judgments of the lieutenant governor's tribunal, there was an appeal to the governor, though such an appeal was seldom, if ever, resorted to; and from all the judgments of the governor's tribunal, there was an appeal to the Royal Audience, sitting at Puerto Principe, in the Island of Cuba, and presided over by the captain general of that Island; and from the commandants of the posts in Upper Louisiana there was also an appeal to the lieutenant governor.

The return of Louisiana under the dominion of France, and its transfer to the United States, did not, for a moment weaken the Spanish laws in the province. The French, during the short continuation of their power, from the 30th of November to the 20th of December, 1803, made no alteration in the jurisprudence of the country. (*i.*)

According to the law of nations, and the treaty between the United States and France, of April 30th, 1803, and the acts of Congress of March 26th, 1804, March 3d, 1805 and June 4th, 1812, the Spanish laws in Upper Louisiana were expressly continued in full force, until altered or repealed by the proper legislative authority. There was no legislation on this subject, until the 19th of January, 1816, when the territorial legislature of Missouri declared that the common law of England, and the statutes of the British Parliament, made prior to the fourth year of James the First, to supply its defects, should be the rule of decision, so far as the same were not repugnant to, or inconsistent with, the *laws* (omitting to say *statute* laws) of the territory. (*j.*) The Supreme Court of Mis-

(*g.*) Vol. 2 White's Rec., 450, 467.

(*h.*) See preface to Morean and Carleton's Partidas, vol. 1, p. 21; New Orleans vs. U. S., 10 Peters' Rep., 662; argument of Mr. Geyer in the case of Strother vs. Lucas, 12 Peters' Rep., 782; Martin's His. of Lou.; 3 Martin's Lou. Rep., 120.

(*i.*) Morean and Carleton's Partidas, vol. 1, p. 21, preface; Martin's His. of Lou.

(*j.*) Ter. Laws of Mo., vol. 1, p. 436.

souri, in the case of Lindell vs. McNair, 4 Missouri Reports, page 380, and in the case of Picotte and others vs. Cooley and others, 10 Mo. Rep., page 312, seems to have decided, that the act of the territorial legislature, of the 19th of January, 1816, did not abolish the Spanish laws, but only introduced the common law, so far as was necessary to supply the *deficiencies* of the Spanish law; and the Missouri District Court of the United States, in the case of Smith vs. Fitzsimmons and Rogers, made a similar decision (*k.*) These decisions seem to correspond with the opinions of all the older lawyers, who were cotemporary with those times, and are familiar with the manner in which the people then understood the matter, which makes their opinions peculiarly valuable. The Spanish laws consist of positive codes, expressly prepared by the proper authority of the government of Spain, and promulgated by ordinances in a similar manner to the revised statutes of Missouri, which makes those codes come as strictly within the definition of the term *laws*, as legislative enactments do; because, the term *ordinance*, and the term *statute*, when applied to legal matters, are synonymous in meaning, and both are included alike in the term *law*. Now, if the Spanish laws had consisted of the customs and usages of the nation, collected together in large volumes by learned writers, without authority, like the writings of Coke, Blackstone and Bacon, the customs so collected, although having the force of laws, might not be construed to come within the popular meaning of the term *laws*, as used by the territorial legislature in 1816; but the Spanish codes are in effect positive legislative ordinances, and therefore, can not by any plausible process of reasoning, be excluded from coming within the term *laws*, as used in the act of 1816. We are, therefore, of the opinion that the above decisions and opinions on this subject are strictly correct. And as there was no more legislation on this subject, until the act of the legislature of February the 12th, 1825, which went into operation on the 4th of July following, we may safely come to the conclusion, that the main body of the Spanish law continued in full force, until the 4th of July, 1825, when the revised statutes of that year went into operation, which made the English common law the rule of decision, except so far as the same was inconsistent with the *statute* laws of the State. The legislature seems to have been aware of the great inconvenience to the people, of suddenly abolishing one system of laws, and of substituting another widely different, in its stead, and so worded the act of 1816, as to create a gradual introduction of the English common law, which nicely prepared the way for the entire abolition of the Spanish law in 1825, without any public inconvenience. In this, they acted with that abundance of good sense, which was so characteristic of the public men of Missouri in those times. Then, any one will on a moment's reflection perceive, that at least one-fourth in value, if not one-third of the real estate in Missouri is affected by the Spanish laws: because, the titles to at least one-fourth in value, if not more, of

(*k.*) See the argument of Mr. Geyer, 12 Peters 782, in the case of Strother vs Lucas.

the real estate originated during the existence of these laws. Therefore, it is highly necessary for the practicing lawyer, and the judge, to obtain at least a substantial general knowledge of the Spanish laws, in order to conduct land suits properly, and to do justice to the parties in ascertaining their rights.

The public records of those times show, that no lands were granted, conceded, distributed or otherwise disposed of in Missouri until the year 1766; and consequently, there are no land titles in the State, that originated before that time. Although Ste. Genevieve and St. Louis were both settled, as we have shown, yet until the year 1766, no one pretended to own any real property.

From 1766 to 1770, the lands in this State were granted by Louis St. Ange de Belle Rive, a French Commandant. All these grants have been expressly decided to be void: (*l*) because, the French authority ceased on the publication of the treaty of 1762, and St. Ange, during this period, had no authority whatever from the Spanish government. All these grants were, however, overhauled, and surveyed, and on the 23d of May, 1772, recognised by the regular, and proper agent of Spain. (*m*) Then, in a legal point of view, no land titles in this State can be dated any further back than 1772; because, they cannot be called *titles* at all until recognised by the proper authority.

We have now shown, that the French laws were abolished on the 26th of November, 1769, and that no land titles were granted by the *proper* authority until May 23d, 1772, which sufficiently proves, that no land titles originated during the existence of the French laws: therefore, a knowledge of the French laws, is not necessary, in order to understand the old land titles in Missouri.

(*l.*) See all about this matter in Wright's admr. vs. Thomas, 4 Mo. Rep. 577; 5 Martin's Rep. 35; 6 Peters 747, 763, 727; 4 Martin's Rep. 213; 9 Peters 742, 133, 137.
(*m.*) Strother vs. Lucas 12 Peters 410; 4 Mo. Rep. 577.

ART. IV.—CLAYS AND MINERALS OF MISSOURI.

We are much pleased to find that our call for facts, in relation to the varied resources of the country, has been noticed by the readers of the Western Journal, but we are more gratified still, that some of them are begining to look around for the purpose of collecting and publishing many valuable facts, which have long remained unknown to the public, at least beyond their immediate neighborhood.

If the people of Missouri desire to attract capital and skill to this State, they must show how the one can be advantageously invested, and the other profitably employed. There would be sufficient capital and enterprise found to develop all the resources of the country, if the objects of investment were generally and extensively made known; and he may well be considered a benefactor, who by making known the natural wealth and advantages of the State, shall be instrumental in their development.

There is, perhaps, no article which enters so largely into the consumption of the people of the west, upon which the cost and charges incident to importation are as great as upon pottery and queensware; and there is no other country, perhaps, where the manufacture of these articles would be so completely protected against foreign competition, as it would be here. We consider the kaolin and other plastic clays of Southern Missouri, as constituting one of our important sources of wealth, and feel confident that the time is not far distant when Missouri will supply a large portion of the queensware, and other articles of pottery required, for the consumption of the west; and next to coal and iron, the materials suitable for the manufacture of queensware, china and glass may be considered the most important mineral products of this State.

The following communication from F. Woolford, Esq., of Caledonia, shows that kaolin is abundant, and extensively distributed in Southern Missouri:

Messrs. Editors:—Having noticed your desire to collect facts connected with the mineral resources of the State, I have undertaken to give a description of the kaolin, and the plastic, or pipe clays of Washington and the adjoining counties, so far as they have come within the range of my observation. Among the many locations where these clays are found, I will mention the following:

There is a bed of pipe clay near the Mammoth Lead Mine, on Big River; it is white in appearance, and polishes with the pressure of the fingers; it emits a strong odour when breathed upon, and contains some iron in the form of protoxide, which would render it unfit for the manufacture of a good pottery. Pipe clay has also been discovered in the Richwoods, about ten miles west of the Mammoth Lead Mine; it is a bluish white, less plastic than that just mentioned, polishes with the pressure of the fingers, and emits a very little odour when breathed upon. It becomes very white in the porcelain kiln, and is tolerably well adapted to the manufacture of Liverpool or delf ware. It is, however, subject to the considerable imperfection of *crazing*, a technical term used by potters, which denotes the cracking of the glaze. This renders it unfit for the manufacture of a good substantial article of fine stone ware.

The next location is about nine miles from Caledonia. This is a bluish white clay, and contains a greater number of good qualities than either of those mentioned, and being free from iron, it becomes exceedingly white in the porcelain kiln. It forms a very solid quality of ware, and is capable of being advantageously combined with a greater quantity of silicious earth, or powdered flints, than either of the first mentioned specimens. This is a desirable quality because the greater the portion of silex that is used, the whiter will be the ware. This clay is well adapted to the manufacture of granite or common wares.

I have discovered porcelain clay, or kaolin earth, in three different locations in Washington county; these are all similar in quality, and differ very little in thetr external appearance. They are very white, and possess very characteristic properties; are friable in the hand, meagre to the touch, and difficult to form into

paste with water. These kaolins contain very little mica; they remain very white, and retain their color unaltered in the greatest heat I could expose them to. On the south side of the Ozark Mountains, there are large deposites of this mineral. It is found there in every state of decomposition, among the felspar rocks, which are the leading rocks of these mountains.

Kaolin clay is found in Ste. Genevieve county, fourteen miles from the Mississippi river and fifty miles below St. Louis. It has a slight yellow color. This kaolin is more unctious to the touch, and more micorus than the clays of Washington county; it remains unaltered in the porcelain kiln, except in color, and becomes very white; it is also adapted to the manutacture of porcelain. In the neighborhood of this kaolin, there are large blocks of graphic granite, and this clay is found in the seams or partings between the rocks. Granite is the leading rock of that country. Near the kaolin are also found large blocks of glassy felspar, which is mostly of a flesh color, but some nearly white. It is well adapted to the manufacture of bodies and glazes of porcelain ware.

I have also recently discovered a kind of mineral which resembles a pot-stone- or meerschaum. Some specimens have been analyzed, and found to contain two parts of very fine silex, and one of alumine, one atom of iron, and a small portion of magnesia. Its external appearance is of a light yellow color; it emits no odour when breathed upon; when immersed in water, it falls down quickly into powder, and becomes a beautiful deep yellow. It stands the heat of the porcelain kiln without any contraction in its bulk, and becomes a beautiful light rose red; but when mixed with twelve per cent. of felspar, it becomes very white and fine grained, and is as hard as the French china, possesses considerable transparency, and admits of a shining glaze. There are large blocks of glassy felspar near Caledonia, of a flesh color and some nearly white; it contains at least from six to eight per cent. of potash, and is well adapted to the manufacture of pottery glazes. Here is also a bluish white flint, nearly pure silex. It is well adapted to the formation of bodies and glazes of pottery. In the vicinity of Caledonia there is a bed of fire clay, well adapted to the manufacture of fire bricks, and the formation of saggers for baking china.

Here are, also large beds of grey marl, but it is impregnated with lime and iron, which renders it unfit for fire bricks, pottery, saggers, &c.

I could also say something about manganese ore, black wad, &c., but as these do not come under the head of clays, I shall desist. F. WOOLFORD.

CALEDONIA, Washington County, March 4, 1848.

ART. V.—MANUFACTURE OF WOOL IN UTICA, NEW YORK.

Every well wisher of his country should read the following interesting article which we find in the Utica Herald. It shows the potency of diversity of employment.—*Eds.*

The census of 1845, revealed to the citizens of Utica the startling and unwelcome fact, that its population had diminished several hundreds within the five preceding years. The real estate holders took alarm from the revelation of a circumstance so prejudicial to their interest, and sat about, immediately to devise a remedy.

But one resource seemed available in this emergency—which was, to convert our city from a commercial to a manufacturing town. The effect of extensive manufacturing establishments, on the trade and general prosperity of communities, had been observed in the rapid rise of easten cities, and nearer home, in the speedy growth of numerous prosperous villages in our own county, whose origin and progress were to be traced directly to the business created by the wants of large manufacturing establishments in their centres.

But how should we build up such concerns in our city? was the great question to be determined. Water power was then regarded as the only propelling force that could be used with profit for the purpose of driving machinery. This our city had not within its command. It could not be obtained without great and almost impracticable cost. The use of steam seemed our only alternative. Few believed that with so expensive a propelling power, the business of manufacturing could be carried on here with advantage; yet a few resolute spirits, in the face of dire croakings from a numerous and influential herd of unbelievers, boldly determined that the experiment should be tested, even though the cost of the predicted failure should fall on themselves alone.

They called a meeting and deputised a committee of their number, to journey to the east and examine the far-famed manufactories of that region, and investigate the powers relatively, of water and steam. The committee most faithfully fulfilled their trust, and in due time laid before their fellow citizens an elaborate and closely reasoned report, fortified by such facts in relation to the subject of their investigation, as could hardly fail to convince every practical mind. The entire feasibility of constructing manufactories on an extensive scale, with steam as the sole propelling force, was made so apparent to the members of the committee while conducting their investigations, that each one offered to contribute heavily of his own means, to the stock of a manufacturing association to be formed on the principles of the report.

Yet still there were many grave doubters, and it was only by the unremitting exertions of several gentlemen whose labors for the good of the city can never be too highly appreciated, that the capital stock was at last filled.

From all but the first few, who opened the list with liberal entries, the subscriptions came sparingly and in driblets. Some real estate holders who had most at stake in the success of the enterprise, to their shame be it said, contributed nothing; and perhaps the amount would never have been raised at all, but for the liberality of the mechanics and small property holders, who risked a large

part of their little savings in the bold venture, and by this means made up the deficiency.

But the capital was, at length, though with great difficulty, all made up, and its expenditure was at once vigorously commenced. In a few months a spot that had, till then, been a vacant, barren and stagnant goose pond, was redeemed from waste, and beautified by the erection thereon of several elegant and costly structures, in which the hum of industry had succeeded to the croaking of the bull-frog, and the scream of the goose, which was once the only music of the place.

The "Utica Steam Woolen Company" had barely commenced operations, before the whole city, lately made up of a population of stubborn doubters, became, as by magic, converts to steam. The enterprise could no longer be regarded as an experiment. A large engine, moving a multitude of complex machines, with as much readiness, apparently, as a man would move a grind-stone, and with no greater cost per day than it required to warm a water mill in winter, was a potent preacher of truth, and made proselytes in places where figures would have failed to awaken conviction.

The experiment had been tried and proved promise of success, to use a hackneyed phrase, vastly beyond the "most sanguine anticipations of its friends."

It then became an easy task to procure investments in manufacturing enterprises with steam as a propelling force. In as many weeks as it took months before to fill up the stock of one company, three additional associations were formed, with an aggregate capital of half a million of dollars, which is now expending in the erection of new establishments.

Nor is this the only benefit that has sprung from the enterprise Mechanism of many kinds, which before was scarcely known in our city, is now carried on largely and successfully in every street. Every branch of manufactures is prosperous, and the only complaint we hear from our citizens is, that they cannot turn off work with sufficient rapidity to fill the demand Enlargement of business is not only talked of by our mechanics and manufacturers, but is carried into effect as fast as time and means will allow.

All this prosperity is the direct and legitimate result of the enterprise of the founders of the steam woolen mill. But for that enterprise, our city would still be taking rapid steps in the backward progression. To them is due the credit of arresting the decay of our beautiful city, and placing it in a position where it bids fair to outstrip its cotemporaries and former rivals.

A few facts and statistics relative to this mill—which is regarded by experienced manufacturers as a "model establishment"—will be interesting in the present connection. We are indebted for them to Thomas Cellins, Esq., the vigilant guardian of the treasure of the Institution, and one of the firmest and earliest friends of manufacturing by steam in Utica.

Utica Steam Woolen Factory.—This company was incorporated in February, 1846, under the general manufacturing law, which has long been in exist-

ence in this State. In the spring of 1847 it commenced manufacturing woolen goods, since which period it has been in regular and successful operation.

The Board of Directors, on the 16th of December last, after a full and satisfactory examination of the concerns of the Company, declared a dividend of ten per cent., payable to the stockholders on the first day of February next—leaving a surplus profit of upwards of twenty-five per cent. on the capital stock paid in, subject to their future action.

The company have erected the following buildings, all of brick, except the basements, which are of lime stone and gneiss rock, viz: Main factory, wool house, dry house, dye house, boiler houses, gas works, work shop and stable.

The main building, or factory, is one hundred and fifty-six feet long, by forty feet wide, and five stories high, including basement and attic. The wool house is ninety feet long, by forty feet wide, and two stories high, besides the basement. The dry house is one hundred feet long by thirty feet wide, and three stories high. The dye house is eighty-eight feet long, by forty in width, and one story high. The work shop and stable is sixty feet long, and thirty feet wide, and two stories high. The boiler house, including gas works, are fifty-five feet long each, thirty-two feet wide, and one story high.

The factory contains nine full setts of machinery, consisting of twenty-seven carding machines, forty-one broad looms, eleven jacks, of two hundred spindles each, eleven gigs, twelve fulling mills, four shearing machines, two brushing machines, one dye beater, two presses, two pickers, two warpers, four spoolers, in addition to the steam engine, boilers and gas works.

The boilers furnish steam sufficient to propel the engine, heat for warming all the buildings, boiling the dyes, drying the wood and cloths, and the necessary heat required in the fulling process of the cloth. They require about two tons of coal per day, the cost of which, at the factory does not exceed four dollars and twenty cents per ton.

The whole cost of the real estate, buildings, machinery and fixtures of the company, as nearly as can be ascertained, is $88,044 60—the amount of capital stock paid in, is $86,400.

The whole of the machinery is now in full operation, and the cloth manufactured daily, exceeds four hundred and fifty yards of finished cloth, and the yearly production of broadcloth will be about 135,000 yards, requiring for the manufacture of the cloth about 338,000 pounds of fleece wool annually.

The quantity of fleece wool for the annual supply appears to be more than is necessarily required. Yet, when taken into view, the process of assorting into numbers, which throws out the coarser qualities, such as are not applicable to manufacture here, reducing the whole quantity, leaving only a sufficient quantity of the higher grades of wool to supply the factory.

ART. VI.—THE OBLIGATION OF CONTRACTS,

OR AN INQUIRY INTO THE NATURE AND DEGREE OF EQUALITY REQUIRED IN CONTRACTS OF MUTUAL INTEREST.

(Continued from page 68.)

THE intelligent reader, no doubt, is informed of the origin and history of what is denominated the *common law.*

Its rules have long predominated in this country, in the construction of agreements, and in enforcing their performance. In some degree, and in certain cases, it is true, the unbending rigor of the common law has been softened by modern judicial interpretation or discretion, and in others by legislative enactment.

In the administration of the common law, in respect to contracts, courts have frequently, (especially within the last century,) exercised the prerogative of harmonizing the common law with the principles of equity. In other words, in cases where it is apparent the rigorous rules of the common law would work injustice if carried out, courts have resorted to equity jurisprudence for rules to prevent injustice.

These suggestions clearly indicate, what is really the fact, that we have two systems of jurisprudence, apparently, if not essentially different in principles, as well as in their practical application—either of which may be available, as circumstances or necessity may require.

This apparent anomally may seem strange to those who have never become acquainted with our system of laws, and their application by our judicial tribunals. That these systems, so essentially different in their origin, and to a great extent in their application, should be allowed to exist at the same time, is no cause of complaint. On the contrary, we have just cause of congratulation, that both systems have so long existed, and been made applicable to the business and practical affairs of life. Indeed, it is within reasonable bounds to say, that these systems, more than any other causes, have contributed to the establishment and maintenance of wise systems of government, and the security of individual rights.

In pursuing our inquiry, it is not our purpose to discard the rules which these systems afford; on the contrary, it is our purpose to ascertain what are, in reality, the elements of the rules applicable to contracts which these systems severally or collectively afford. And so far as they conform to equality and strict morality, it is our purpose to adhere to them; but if, in the sequel, it shall appear that they are incompatible with morality, or countenance inequality, we shall not hesitate to condemn and discard them.

In our judgment, it is quite immaterial by what name a system is known, or whether a people have one or many systems of jurisprudence, if the whole maintains equality, and affords a simple, safe and prompt means of preventing or redressing injustice.

Names and externals, things which do not affect the essence of a system of laws, are, for the most part, mere matters of expediency, and consequently of but

little importance, excepting that in every superstructure, symmetry and beauty are desirable.

It may not be unprofitable for us to trace out the rules applicable to contracts, of each of the systems to which we have referred.

It is regarded as a universal and fundamental rule in the *civil law*, and its derivative systems, that every contract depends wholly upon natural law, and that it is governed entirely by rules deduced from natural law. This, in few words, is the fundamental doctrine of the civil law in respect to contracts. To the careless reader it may seem that we have stated too tersely or too much condensed the doctrine of the civil law, on this subject. But we hazard nothing in saying that we state the doctrine truly. Certain it is, that upon this solid foundation the civilians reared a consistent and beautiful system of jurisprudence, in relation to defects and losses sustained from ignorance of circumstances or facts, *intrinsic* to the subject of sale.

The doctrine of the civil law in effect declares, that the seller of a commodity contracts with the buyer to convey to him the property of the thing sold, and this *property* is regarded as a useful property, within the meaning of the contracting parties. The vendor is regarded as virtually warranting against all defects in the subject of sale; and this the civil law regards as the natural result, from the understanding of the contracting parties, without any express stipulation on the subject. In other words, the civil law teaches, that in all contracts, the observance of that good faith between the parties, which natural justice and conscience would approve, as being of the very essence of the transaction. Hence its leading maxim—"*Bona fides in omnibus contractibus necessaria.*"

One of the most learned commentators upon the civil law,* thus states its doctrines in respect to concealment and reservation in contracts—"In all contracts of mutual interest, good faith not only forbids falsehood, but also all concealment of every thing which he with whom we bargain, has an interest in knowing, in relation to the matter which is the subject of contract. The reason of this is, that justice in contracts consists in equality. Every thing, then, that tends to infringe this equality, is against equity. It is evident that any reservation on the part of one of the contracting parties respecting any thing which the other may have an interest in knowing, violates this equality; for, as soon as one party has a knowledge of the matter superior to that of the other, he has an advantage in forming his bargain. He understands what he is doing better than the other, and, of course, the equality between them is at an end." In applying this doctrine to contracts of sale, it follows that the seller must disclose every circumstance within his knowledge respecting the matter which the buyer has an interest in knowing, and that he sins against that good faith which should reign in his contract, if he conceals any such circumstance.

Here is shown the strict rule of the ancient Roman law, in reference to reser-

*Pothier.

vations or want of *good faith*, respecting extrinsic circumstances, as affecting contracts. Indeed, it seems thus to have been administered with all its rigor, in the tribunals of the Roman Empire. And we find that even to the present time the reason and justice of these rules are strongly asserted and maintained by able writers and learned jurists throughout modern Europe.

The soundness of this doctrine may well be questioned. However plausible it may appear in theory, it seems wholly impracticable in the business concerns of modern life; and if we bestow proper reflection to the subject, we shall readily come to the conclusion, that while it preserves its rank in the theoretical institutes of the law, it has become obsolete as a rule in modern practice.

The doctrine of which we have spoken, is unquestionably hostile to the policy of modern civilized society. A literal compliance with it, and a rigid interference on the part of our judicial tribunals to enforce it, would effectually destroy every stimulus to exertion in commerce and the arts. When we take an enlarged and correct view of the subject, we find that the greatest truths of political economy, are but those of morality, viewed under another aspect—and sound policy is never in collision with sound morality.

It is not reasonable—indeed it cannot be true—that either contracting party is bound in conscience, or even by an overwrought sense of honor, to communicate to the other every circumstance which he has an interest in knowing, respecting the subject of the contract. And we have come to this conclusion without reference to the legal enforcement of contracts under this doctrine of the civil law.

For however well meant the doctrine may be, and however it may have been drawn from just notions of right and wrong—it is evidently far too broad in its terms, and wanting both in precision and truth. Many examples of familiar occurrence could be suggested, if necessary, which would illustrate the unreasonableness of this doctrine and its utter impracticability.

In the ordinary routine of business, it is generally the case that both contracting parties decide correctly as to their own interests; but both may be wrong, or either—and yet in the judgment of all men of common sense, the bargain scrupulously honest.

The notion of giving and receiving mere equivalents, scarcely enters the minds of those who engage in trade from motives of commercial gain. This fact alone goes far to show the fallacy of a doctrine which, whilst it places morality in obvious contradiction to the necessities and the prosperity of civilized society, is so diametrically opposed to the convictions we have of the fairness of the dealings between man and man, as they pass under our observation.

In short, the incongruities and absurdities which are fairly deducible from this doctrine, either as a guide of conscience or as a rule of law—offer the best demonstration of its unsoundness.

For example, to require that a vendor of a chattel should disclose every circumstance within his knowledge, which the vendee has an interest in knowing, and

that he who is silent as to such circumstances, sins against good faith, when applied to *particular cases*, no doubt, in many instances, would be just. But how many cases occur in the ever-varying transactions and business of life, where justice and good faith never call for such disclosures—and where such disclosures would completely destroy that fair superiority which the industrious and intelligent man by his labor or enterprize has fairly earned, over his careless or slothful neighbor.

We now pass to the consideration of a system to which our judicial tribunals are mainly indebted for rules of interpretation and construction in respect to contracts.

The *common law rule*—the antagonist, to some extent, of the doctrine from the consideration of which we have just passed—has been briefly stated in our previous remarks. The rule emanating from this system, is substantially to the effect, that where a bargain is merely that the purchaser shall give a certain price for the property sold, unaccompanied with any stipulation, express or implied, that he is not to have it for less than its value, the knowledge by the vendee of circumstances materially enhancing the value of the thing sold, and the known ignorance of it by the vendor, will not affect the validity of the contract. Practically, it is saying, that if A., knowing that in the property of B. there is some peculiar or intrinsic value, of which B. is wholly ignorant, should enter into a contract for the purchase of such property, without considering or taking into account its peculiar or intrinsic value, the contract would be valid. This would be so because the common law, in effect, declares that from the nature of the contract, A. is not bound to disclose his information in regard to the peculiar value of the property. The stern maxim—"*caveat emptor*"—is proclaimed to the contracting parties.

Upon the buyer is imposed the necessity of strict caution and vigilance, and upon him must fall the loss or disadvantage of every imprudent or unlucky purchase, unless the worth or quality of the commodity is expressly and formally warranted by the vendor—or that he knowingly makes use of some false allegation or act calculated to conceal or deceive.

The only implied obligation that the vendor of a chattel comes under, is, that he has a right to sell, and that his title is good; beyond this, in all ordinary agreements of sale or exchange, the maxim, *caveat emptor*, prevails, as an indication of the stern rule of the common law.

Each party abides by his own sagacity and judgment—no matter how defective the article sold may be, and for which a full market price of a good one may have been paid—no matter how much its value may be inferior to its cost—if no fraud or intentional falsehood has been used or practiced by the vendor, the buyer is without remedy for any loss he may suffer. For, says a learned commentator upon the common law,† "With regard to the goodness of the wares,

† Sir William Blackstone.

the vendor is not bound to answer, unless he expressly warrants them—or unless he knew them to be otherwise, and had used any art to disguise them—or unless they turn out to be different from what he represented to the buyer."

Thus far, our remarks have been mainly directed to the rule of the common law, in respect to the suppression or withholding of facts materially affecting the value of property. In the theory of this system, a distinction is plainly marked between the suppression of *extrinsic* and *intrinsic* circumstances. This distinction, however, seems confined, in some degree, to a class of cases which do not render the distinction inconvenient or odious. In practice, the distinction is scarcely perceptible. It is scarcely necessary, therefore, to introduce the distinction, with any more particularity, into this discussion.

From the rule we have stated, it will be perceived that the vendor is not required to answer for the defects of his unwarranted wares; and though it cannot be said that he is thus protected by the positive provisions of law, yet he is effectually so by its mode of administration. Glaring inequalities, growing out of the rule we have stated, not unfrequently occur, which cannot fail deeply to impress every reflecting mind. The vendor of a chattel, as we have seen, is protected from answering for the defects of his wares; yet, under the same law, he who undertakes to *make the same wares*, is required to produce the *very* article that he contracted to produce—*i. e.*, he is bound to produce an article that shall be fit for the purpose for which it is designed; otherwise he cannot demand compensation for his wares.

The artizan who makes an article, but which proves to be inferior in quality to the one he contracted to make, can not claim the compensation agreed upon; because, says the *common law, there has been no beneficial service under the agreement—therefore there should be no pay.* In other words, when a person is employed to do or perform any particular work or duty for hire, the law implies that he will use all proper diligence and skill in the performance thereof. Thus we see that, although there is no implied warranty resting on the seller, as to the quality of the finished article, there is one resting upon him who makes it.

This rule in respect to builders, artizans, &c., cannot be said to grow out of any necessity of the case; for it is possible for an employer, in all cases, to superintend the work as it progresses, and object to its defects; therefore, it cannot be said that he is obliged to rely upon the undertaker. For example: A. undertakes to construct a carriage for B., but executes his agreement defectively, either in respect to materials or workmanship. B. has the opportunity to object to the defects as the work progresses—still, if he does not, A. cannot claim any thing for his work, because he *impliedly* engaged to construct a good carriage. The consequences, then, of the carelessness or ignorance of A., falls on himself.

But if the same defective carriage, after its completion, is sold by A. to B., without an express warranty as to its quality, the latter takes it on his own judg-

ment; and if he pays too much, or if the carriage does not answer his expectations or purposes, he is without remedy.

While many of the rules of the common law, in respect to contracts, apparently seem arbitrary and severe, we may refer to another species of agreements to show the wisdom as well as the equity upon which the law is founded. In contracts of insurance, each party is bound under the law, not simply to strict integrity, but to unreserved frankness and candor. The rule is well settled in all insurances, that "*it is essential to the contract that the insured should represent the true state and condition of the subject insured to the best of his knowledge.*"

On such representation the underwriters engage. The insured is bound to tell the underwriters the *truth* in respect to every material fact connected with the subject insured; and every fact, within his knowledge, regarding which ignorance or mistake might possibly induce the underwriter to compute his risk upon an incorrect basis, or to enter into the contract on less favorable terms than he would otherwise have done, is regarded as a *material fact:* and any suppression or misrepresentation avoids the contract. And this rule is equally applicable to intrinsic and extrinsic circumstances or facts. The same degree of frankness is required of the underwriter. In this class of contracts the parties meet on equal grounds The judgment of both acts on the *same* state of facts. A frank and unreserved disclosure of every material fact, is of the essence, and gives binding force to the contract. It is scarcely necessary to point to the spirit which prevails in this species of agreement, as contrasted with that which regulates the common law in respect to others; the contrast is too strongly marked to escape the observation of the most superficial student.

In contracts of insurance, the most punctilious honor is required—yet there is nothing peculiar or sacred in them, nor in the subjects to which they relate, which should give such exaltation to them. Insurance, unquestionably, is of very great practical advantage—still, it is difficult to assign any substantial reason for the marked distinction or contrast which we have pointed out. In other agreements the common law is satisfied by requiring merely that the contracting parties shall refrain from palpable fraud. And whilst contracts of insurance seem to be the special objects of protection from imposition, in an infinite variety of others, growing out of the varied necessities and pursuits of men, *caveat emptor* is the only response of the common law, however blindly or ignorantly the parties may have acted in respect to the subject of the contract.

It is true, that the strict rule of which we have spoken, teaches vigilance and caution in the affairs of life. Parties are cautioned by it, against an over confidence. Ignorance is punished, and the careless, unsuspicious man is made an example—"*Vigilantibus non dormientibus subserviunt legis.* Thus, in effect, declaring that he who watches while you sleep shall enjoy undisturbed, the fruits of his cunning.

Now is it not difficult to discover or assign a reason why the same principle

which lays at the foundation of contracts of insurance, should not apply to all the others? In other words, should not the same rule apply to all cases involving the same principle? If the difference which has been attempted to be shewn, in fact exists, and if the law is founded in reason, there certainly should be some reason for the difference.

Thus far we have endeavored to follow two distinct systems of jurisprudence, in operation at the same time; and, of course, affecting at the same time, to a greater or less extent, the interests and prosperity of the community. The antagonist principles involved in these systems, have, to some extent, been pointed out.

As before stated, it is not our purpose to detract from either, or lessen in the least degree the respect and confidence which all good men should feel for our laws and their impartial administration. No one will deny but that we are much indebted to these systems of jurisprudence for the prosperity and security in our possessions and rights, which we enjoy in such a pre-eminent degree. Still we think our laws like every thing else of human origin — are capable of improvement. And though wise men and philosophers have told us that "it is of little consequence what the law is, provided it be certain," we beg permission to raise our humble voice against a proposition so unreasonable and devoid of principle. Every wise and good law, we maintain, will be found on examination to be in strict conformity to common honesty. Laws which are worthy of our respect, and which are calculated most surely to afford us protection, are always found to be in conformity to sound morality. No matter how *certain* laws may be, if they are arbitrary and depart widely from the rules which common sense and common honesty prescribe, they can never be a safe-guard to any people. For, any system to entitle it to respect, should aim at justifiable ends by justifiable means; and every deviation from what is just in morals, is itself unjust.

If these simple truths are lost sight of, the law looses its vigor, and its ministers become impotent for good. For, says a learned writer‡ "if law be a science and deserves that sublime name, it must be founded in principle, and claim an exalted rank in the empire of reason." Indeed, the law cannot fulfil its true uses if it rests upon any other basis than that of common sense and moral reason. Sound legal ethics and those of strict honesty, should always go hand in hand.

With these remarks upon our system of jurisprudence, and its administration, in respect to (as affecting) contracts, let us now, in conclusion, briefly consider whether any, and what, improvements can be made. The suggestions we are about to submit, are not made in any spirit of innovation: they are submitted because it is believed they are founded in reason and sound morality, and, in so far as our views are sound, tested by the rules we have laid down, they will stand through all time, and no arguments of human reason are necessary to their support.

We maintain that the principles of sound morals should be the pervading prin-

‡Sir William Jones.

ciple in the laws of contracts; that the law, in respect to agreements, should maintain equality; and that these simple, yet most important, principles should be universal, and applicable to all contracts of every kind. That it is practical, we have seen from our reference to the law of insurance; that it is reasonable and just, we think none will deny.

The rule that the buyer must take the risk of his purchase, except when there is an express warranty, or some positive fraud practiced upon him, is certainly not founded in reason. The law of sales is, in fact, of the greatest importance in every community, and, probably, affects more directly the great mass of mankind than any one law known to our system. Hence, it is vastly important that its rules should be founded in principle and well settled.

Other laws touch the concerns and business of life but now and then—but in contracts of sale and exchange, the law governing them is in constant operation. As a general rule, the vendor of a commodity knows as well the value and quality of his property as he does his title to it; why, then, should he not be responsible if the commodity sold is not such as the bargain plainly indicates it was understood and believed to be by the buyer? If this rule prevailed, every temptation to overreach, or perpetrate a fraud, would be cut off. In case of a fraud, the penalty would then fall on the right person. As the rule now stands, the burthen of proving a fraud rests on the buyer—a sort of penalty for his want of vigilance and scrutiny at the time of making his bargain. This may often be difficult and often times impossible to prove. But under the rule contended for, let the fact of any defect, existing at the time of sale, in the commodity, be *prima facie* evidence against the vendor, and we hazard nothing in saying that nine-tenths of the litigation and strife that now disturbs the community, would be done away with. It may be answered, that cases may occur in which it would be as difficult to the vendor to know the quality or value of his property as it would to the vendee. Granted: and there is no doubt that, in very many transactions, such would be the case. But how easy would it be for every vendor thus circumstanced, to protect himself from any responsibility, by stating the fact, and provide, in his agreement, against the liability which it is but reasonable, if not so provided against, that he should incur. Such, in general terms, is the principle we desire to see established.

It has not been our purpose to extend our views at much length in support of the principles here enunciated. We may again avail ourselves of the pages of the WESTERN JOURNAL for the further consideration of this interesting, and as we think, important subject.

COMMERCIAL STATISTICS.

A table of Imports and Exports of the United States, from the year 1791 *to* 1847, *inclusive; together with the excess of Imports or Exports for each year, and the nett revenue accruing from Imports during the same period.*

Years.	Imports.	Exports.	Excess of imports.	Excess of exports.	Nett revenue from imports.
1791	$52,000,000	$19,012,041	$32,987,959	.....	$4,399,473
1792	31,500,000	20,753,098	10,746,902	.....	3,443,070
1793	31,100,000	25,109,572	4,990,428	.....	4,255,306
1794	34,600,000	33,026,233	1,573,767	.....	4,801,065
1795	69,756,268	47,989,472	21,766,796	.....	5,588,461
1796	81,436,164	67,064,097	14,372,067	.....	6,567,987
1797	75,379,406	56,850,206	18,529,200	.....	7,549,649
1798	68,551,700	61,527,097	7,024,603	.....	7,100,061
1799	79,068,148	78,665,522	402,626	.....	6,610,449
1800	91,252,768	70,971,780	280,988	.....	8,080,932
1801	111,363,511	94,115,225	17,247,586	.....	10,750,779
1802	76,333,333	72,483,160	3,850,173	.....	12,438,235
1803	64,666,666	55,800,033	8,869,633	.....	10,479,417
1804	85.000,000	77,699,074	7,300,926	.....	11,098,565
1805	120,000,000	95,566,021	24,433,979	.....	12,936,487
1806	129,000,000	101,536,963	27,463,037	.....	14,667,698
1807	138,000,000	108,343,150	29,656,850	.....	15,845,521
1808	56,990,000	22,430,960	34,559,040	.....	16,393,550
1809	59,400,000	52,203,231	7,196,769	.....	7,296,020
1810	85,400,000	66,757,974	18,642,046	.....	8,583,309
1811	53,490,000	61,316,831	....	$7,916,831	13,313,222
1812	77,030,000	38,527,236	38,502,764	.....	8,958,777
1813	22,005,000	27,855,997	.....	5,850,997	13,224,623
1814	12,965,000	6,927,441	6,037,553	.....	5,998,772
1815	113,041,274	52,557,753	60,483,521	.....	7,282,942
1816	147,103,000	81,920,452	65,182,548	.....	36,306,874
1817	99,250,000	87,671,569	11,578,431	.....	26,283,348
1818	121,750,000	93,281,133	28,468,867	.....	17,176,385
1819	87,125,000	70,142,521	16,982,479	.....	20,283,608
1820	74,450,000	69,691,669	4,758,331	.....	15,005,612
1821	62,585,724	64,974 382	.....	2,389,658	15,155,418
1822	82,241,541	72,160,281	10,081,260	.....	21,219,116
1823	77,579,267	74,699,030	2,880,237	.....	17,717,830
1824	80,549,007	75,986,657	4,562,350	.....	20,215,059
1825	96,340,075	99,535,388	.....	3,195,313	25,387,904
1826	84,974,477	77,595,322	7,379,155	.....	18,997,478
1827	79,484,068	82,324,827	.....	2,840,759	22,378,056
1828	88,509,824	72,264,686	16,245,138	.....	24,890,337
1829	74,492,227	72,358,671	2,133,850	.....	22,296,512
1830	70,876,920	73,849,508	.....	2,992,588	22,833,573
1831	103,191,124	81,310,583	21,880,541	. .....	30,312,851
1832	101,039,266	87,176,943	3,852,323	.....	21,488,896
1833	108,181,311	90,140,433	18,040,778	.....	14,797,782
1834	126,521,332	104,337,972	22,184,360	.....	13,458,111
1835	149,895,742	121,693,577	28,202,165	.....	21,552,272
1836	189,980,035	128,663,040	61,316,995	.....	26,325,839
1837	140,989,217	117,419,376	23,469,841	.....	13,315,129
1838	113,717,404	108,486,616	5,230,788	.....	15,373,238
1839	162,092,132	121,028,416	41,063,716	.....	20,560,439
1840	107,141,519	132,085,946	.....	24,944,427	10,159,339
1841	127,946,477	121,851,803	6,094,674	.....	15,516,589
1842	100,162,087	104,691,534	.....	4,529,447	12,780,173
1843*	64,763,799	84,446,480	.....	19,582,681	6,132,272
1844	108,435,035	111,200,046	.....	2,715,001	26,183,570
1845	117,254,569	114,646,606	.....	2,607,958	27,528,112
1846	121,691,797	113,488,616	8,203,181	.....	26,712,665
1847	146,545,636	158,648,622	.....	12,102,986	23,747,864

*The commercial year of 1843 consisted of only nine months, and the fiscal year of only six months. This will account for the diminished imports and exports of that year. It is also worthy of remark, that the fiscal year of 1843 not only consisted of but six months, but of those six months in which the imports are generally the least; and hence the great falling off of the revenue. The facts above stated arose from the change of the commercial and fiscal year. The increased export of 1847 arises from the famine in Europe.

A STATEMENT showing the quantity of Tobacco inspected in Virginia from 1838 *to* 1847, *the quantity exported, and the foreign markets to which it was shipped; the stock left on the first of October of each year; likewise, the quantity of stems shipped during the same period, and the foreign markets to which they were shipped.*

Years.	U. Kingdom. Tobacco.	Cowes and a market. Tobacco.	Cowes and a market. Stems.	France. Tobacco.	Bremen. Tobacco.	Bremen. Stems.	Holland. Tobac.	Holland. Stems.
1838	12,321	1,170	....	4,743	616	1,908	319	128
1839	13,350	2,463	738	1,115	236	2,317	1,236	919
1840	12,228	1,064	....	5,268	1,158	876	3,828	1,177
1841	16,563	2,785	....	7,395	1,504	3,843	2,497	2,013
1842	10,625	2,818	556	3,747	4,573	2,294	7,637	395
1843	11,424	5,400	....	4,098	3,013	1,543	6,975	321
1844	6,961	1,075	....	605	5,168	1,935	3,810	689
1845	6,525	....	....	4,542	1,422	2,622	1,842	560
1846	11,045	750	....	1,623	1,055½	2,468	2,092	222
1847	5,453	....	....	5,333	844	5,407	627	81

STATEMENT—*Continued.*

Years.	Antwerp. Tobac.	Antwerp. Stems.	Italy, Spain, etc. Tobac.	Italy, Spain, etc. Stems.	Total Shipped. Tobacco.	Total Shipped. Stems.	Inspected. Tobacco.	Stock. Tobacco.
1838	925	....	734	....	20,828	2,036	44,845	12,397
1839	329	57	....	....	18,729	4,031	28,502	4,896
1840	2,028	136	1,621	....	27,195	2,189	58,186	13,829
1841	2,026	218	1,672	....	34,442	6,074	56,141	8,719
1842	1,828	....	1,515	....	32,765	3,245	52,156	11,100
1843	4,814	....	512	136	36,236	2,000	56,788	13,420
1844	1,817	....	1,061	63	20,494	2,687	45,886	14,363
1845	1,019	....	2,354	....	17,704	3,182	51,113	22,050
1846	1,698	....	2,782	....	21,045	2,680	42,679	19,060
1847	774	....	3,529	....	16,560	5,488	51,726	18,127

Comparative Receipts, Exports to foreign ports, and stock of the Maryland and Ohio Tobacco Crop, and also the Kentucky, Missouri and Tennessee crops, for the years 1846 *and* 1847,

MARYLAND AND OHIO. Years.	Receipts. Hhds.	Exported. Hhds.	Stock. Hhds.	KENTUCKY, ETC. Years.	Receipts. Hhds.	Exported. Hhds.	Stock. Hhds.
1846	55,461	36,777	34,029	1846	72,896	62,045	17,046
1847	37,600	37,678	32,596	1847	55,588	50,376	22,336

TRADE AND COMMERCE OF HAVANA.

The following particulars of the commerce of Havana, for the first six months of 1847, as compared with the same time in 1846, is derived from "Diario de la Marina," of July 16th, 1847:—

The number of vessels *entered* Havana, during the first six months of 1846, was 824. Of these, 316 were Spanish, and 508 foreign; during the same time, this year, the number was 1,085, of which 272 were Spanish, and 813 foreign. The number of vessels *cleared* the first six months of 1846, was 821, of which 307 were Spanish, and 514 foreign; same period, this year, 1,085, of which 267 were Spanish, and 828 foreign. Of this increase in foreign vessels, the American flag had the largest number, in consequence of the great importation this year of the productions of the United States.

From the table giving a comparative statement of products registered for exportation from the port of Havana during the first six months of the last twelve

years, we take the articles of sugar, coffee, and tobacco, and compile the following table for only the last five years:

	1843.	1844.	1845.	1846.	1847.
Sugar, boxes,	310,788	390,110	157,389	319,960¾	426,873
Coffee, arrobas,	575,670	523,321	140,383	101,025	294,166
Tobacco, manufac.	68,673	84,451	63,840	80,602¾	94,048
Tobacco, leaf,	899,349	866,949	572,662	2,003,450	754,503

Another table gives a comparative statement of the exportation from Havana to different ports, during the first six months of 1846 and 1847. We take only the articles of sugar, coffee and tobacco:

Ports.	Sugar. Boxes.		Coffee. Arrobas.		Tobacco. Manufactured.		Tobacco. Leaf.	
	1846.	1847.	1846.	1847.	1846.	1847.	1846.	1847.
Spain,	74,969	50,466	21,598	23,087	4,654	17,652	474,314	144,402
United States,	52,960	110,532	36,633	68,323	23,483	15,044	407,152	163,191
England,	2,369	57,911	465	1,298	11,103	12,511	104,172	16,625
Cowes,	83,303	62,489	48	2,836	630	1,804	6,933	.....
Baltic,	6,825	24,710	....	2	1,356	181	....	.....
Hamb. & Bremen,	41,954	30,586	5,944	21,286	5,801	9,971	877,021	249,408
Holland,	5,956	15,569	12	146	766	1,350	25,100	.....
Belgium,	8,840	17,370	6	16	1,278	1,679	7,500	7,875
France,	15,973	13.437	13,944	97,764	19,981	19,588	50,872	131,000
Trieste & Venice,	8,464	8,796	14,821	47,830	360	5,513	....	1,102
Itaiy,	6,883	3,947	800	8,282	1,588	653	9,358	.....
Other ports,	5,131	6,489	1,559	11,331	2,620	2,162	51,644	6,690
Total.....	513,318	401,302	95,530	282,201	75,620	88,208	2,016,066	720,293

We give the substance of the Diario's article, which refers to the above exports:

"From the first statement, it appears that, in the six months ending the 30th of June, sugar has increased 106,912½ boxes over the same period, last year, and 36,763 boxes over that of 1844, which was the year of greatest production and exportation, thus proving that the crop ought to be abundant. The exportation of this product, as appears from the totals in the second statement, conforms with the entry, 87,984 boxes more having been shipped, than in the first six months of last year. In the distribution of the exports, we see that an excess over those of last year, of 57,572 boxes, has gone to the United States; of 55,542 to England; of 18,185 to the Baltic; of 9,613 to Holland; of 7,530 to Belgium; of 332 to Trieste and Venice; of 1,358 to various ports, The exports to Spain have fallen off 24,494 boxes; to Cowes, 20,814; to Hamburgh and Bremen, 11,368; to France, 2,536; and to Italy, 2,936. The diminution in the exports of sugars to the peninsula, is not to be wondered at, since the same thing is observable in the maratime movements of our national vessels, and the causes, of which we have before spoken, are known. The falling off at Cowes, is made up in the very considerable increase of direct shipments to England and the Baltic. Besides, the peculiar circumstances in which, until now, Europe has been placed, must have had an influence on trade in general, and we could not hope to be an exception, although, in truth, we cannot complain, since, fortunately, the United States, by the modification of the tariff, and on account of the diminution of the crop of Louisiana, have taken from us much, while we have

imported more of their productions. Recurring, however, to the total exportation, we will add to those of Havana the sugars which have been shipped in the same six months from Matanzas and Trinidad. From Havana, the number of boxes was 401,302; from Matanzas, 269,325 7-8; from Trinidad, 34,534 1-2—in all, 705,162 3-8 boxes. Although we have the returns of only the first three months from Cienfuegos, we may yet add to the above, the 17,540 boxes shipped thence in that time, making the exportation, so far as we have information, to this time, already reach 722,702 boxes.

"As with sugars, so with coffee exported hence; the increase of the latter over the first six months of last year, being 186,671 arrobas. Tobacco, in the leaf, appears to have had an extraordinary falling off in exportation—being no less than 1,295,773 pounds, while in the manufactured article there has been an increase."

COMMERCE OF THE UNITED STATES WITH CHINA.

The annexed statements of the commerce of China with the United States, for the year ending June 30th, 1847, are derived from the "*European Times*:"

Imports into China, from the U. States, from July 1, 1846, *to June* 30, 1847.

Blue drills, pcs	3,300	Yarn, piculs,	2,943	Flour, barrels,	800
Brown drills,	460,830	Lead,	4,855	Bread, pounds,	18,903
Brown jeans,	46,740	Copper,	79	Beef, barrels,	229
Brown sheetings,	33,218	Spelter,	555	Pork,	70
White drills,	4,697	Cochineal, ceroons	114	Furs,	10,527
Brown twills,	286	Ginseng, piculs	2,796	Candles, boxes,	260
Shirtings,	251	Opium, chests,	17	Specie, dollars,	33,433

Exports of Tea from China to the United States, for the seasons of 1846-7 *and* 1845-6.

	1846-7. *Pounds.*	1845-6. *Pounds.*		1846-7. *Pounds.*	1845-6. *Pounds.*
Congou and Souchong,	3,146,126	3,064,160	Twanky and Hyson Skin,	2,770,705	2,588,776
Pouchong,	372,736	946,378	Young Hyson,	8,572,181	8,633,731
Oolong,	685,695	220,294	Imperial,	983,836	854,043
Pekoe,	120,398	35,435	Gunpowder,	1,307,017	1,253,709
Orange Pekoe,	173,350	———		———	———
Hyson,	754,243	905,566	Total*	18,886,287	18,502,092

Total Exports of Tea from Canton, for the seasons of 1846-7 *and* 1845-6, *to the following countries:*

	1846-7. *Pounds.*	1845-6. *Pounds.*		1846-7. *Pounds.*	1845-6. *Pounds.*
To Gt. Britain,	53,448,339	57,622,803	To Hanseatic Towns,	1,071,560	1,383,252
United States,	18,886,287	18,502,092	France,	226,790	364,580
Holland,	3,054,540	3,054,130			

*Including the Mary Ellen, lost in Gaspar Straits, cargo 716,110 pounds.

Exports from China, to the United States, of silks and sundries, for the seasons of 1846-7, *and* 1845-6.

	1846-7.	1845-6.		1846-7.	1845-6.
Pongees, pieces,	54,487	54,604	Gauze, boxes,	56	000
Handkerchiefs,	24,381	50,975	Cassia, piculs,	6,335	7,867
Sarsnets,	6,505	6,167	Matting, rolls,	16,103	23,538
Senshaws,	5,232	4,085	Gamboge, boxes,	1	159
Camlets,	000	20	Rheubarb,	763	1,135
Lustrings,	357	000	Vermilion,	173	176
Satins,	1,262	1,982	Sweetmeats,	1,223	4,637
Damasks,	622	321	Pearl Buttons,	70	204
Levantines,	1,322	1,099	Chinaware,	105	644
Crapes,	1,500	199	Fire Crackers,	18,685	20,510
Shawls and Scarfs,	54,627	143,277	Oil of Cassia,	244	154
Sewing Silk,	000	630	Oil of Anis,	144	174
Raw Silk, boxes,	316	426	Camphor,	750	1,346
Nankeens,	28	000	Fans,	1,189	1,168
Grass Cloth,	139	692	Lacquered Ware,	157	377

PROGRESS OF THE AMERICAN CHEESE TRADE.

There is no product of the United States that has been so steadily gaining favor in foreign markets, for the last fifteen years, as the article of cheese; and desiring that the farmers of the west should participate in the advantages accruing from the increasing demand for this commodity, we wish to call their attention to the following statistics. We are not aware that there is any reason why cheese may not be made as profitable in the western States as in New York. It is true that the freight would be something more, but there are many advantages in the valley of the Mississippi, which are greatly in favor of the western stock grower. The first of these is the low price of land, and the great advantage, at present, of summer range.

Cheese will bear transportation better than any agricultural article produced in this country, and carries with it less of the productive properties of the soil in proportion to its value. This is a branch of husbandry that requires little outlay of capital, and can be carried on as cheaply as any other, and we feel confident that if a few enterprizing individuals were to set the example, that Missouri and Illinois would in a few years not only rival, but advance far beyond, New York, Pennsylvania, and Ohio, in the production of cheese.

We should be pleased to hear from some of our agricultural friends upon the subject of making cheese in the west; and we should like very much to see a comparative statement made between the profits of growing corn for market, at ten to fifteen cents per bushel, and cheese at the fair market price.

Almost the entire amount received for cheese would be a clear gain to the country—for the greater part of the products which constitute the food of cattle, is of so little value, when compared to its bulk, that it will not bear transportation to a market, and much of the attention and labor connected with cheese-making, would not be otherwise employed.

The "Detroit Free Press," the State paper of Michigan, furnishes the following statement of this new and rather important branch of trade:—

"The cheese trade is rapidly augmenting in this country. The foreign exports of it have become a prominent article of supply for distant climes. Up to 1840, there was but a small quantity of it shipped, and that principally on foreign account. That year, Messrs. Goodrich & Co., of New York, and the Messrs. Green, of Boston, made the experiment of large consignments to England. Of course, they met with the usual prejudices, the market before having been furnished with foreign cheese from Ireland and Holland. By perseverance, the American article gradually came into favor, until it has now reached a heavy consumption. It fills part of the cargo of almost every vessel that leaves our seaports for Liverpool. The statistics of export, as will be seen by the following, betoken a still further extension, which is worthy the attention of farmers of this State:—

1840,	- -	lbs.	723,713	1844,	- -	lbs.	7,433,145
1841,	- -	-	1,748,781	1845,	- -	-	7,941,187
1842,	- -	-	2,456,677	1846,	- -	-	8,675,390
1843,	- -	-	3,440,144				

This foreign export trade has now reached over a million of dollars annually. It goes to fifty-two countries. Our heaviest customers, in 1846, were:—

England,	- -	lbs.	6,744,699	Hayti,	- -	lbs.	150,046
West Indies,	- -		807,040	British Guiana,	- -		162,420
Cuba,	- -	-	227,276	Scotland,	- -	-	88,041
Canadas,	- -	-	185,915	Venezuela,	- -	-	40,812

Until within five years, cheese has usually been kept on sale in our eastern cities by grocers and produce dealers, with a general assortment of other products. A total revolution in this respect has taken place. In New York and Boston, extensive houses, exclusively for cheese, are doing a large business. Several commission houses are now solely engaged in it.

The farmers of our State seem to have neglected this important branch of the dairy. Every other saleable product is produced here in abundance; why not add this to our list of exports! We certainly possess the grazing land. Still we do not make 20 per cent. of the cheese consumed in the State. Daily it is shipped here from Buffalo, and goes into the interior of this State. Ohio also sends her hundreds of tons to our market. Neither Western New York nor Ohio possesses more advantages for its manufacture than our own farmers. We are told that, at the prices it has borne for the last five years, it is much more profitable than butter. In fact, for three months in the year, butter does not sell at any higher price. All dairy-women agree that two pounds of cheese are made easier than one pound of butter. Yet it is neglected.

In several towns near Buffalo, (Hamburgh and Collins,) it is the principal business of the farmers, and all who have embarked in it have greatly added to their wealth. Chautauque County farmers have increased their cows for cheese-

making; Herkimer County, N. Y., produced 8,000,000 lbs. in 1845, according to the State census; St. Lawrence, 9,000,000 lbs. In Alleghany County, heretofore, lumber was the principal production; nearly every farmer now turns out his five to twenty casks of cheese in the fall. All the southern tiers of counties in that State are largely embarking into it. The census of 1835 gives the quantity made in the State at 36,000,000 lbs. Ohio has doubled her exports of it within five years. Indiana cheese is now becoming known in the market.

As a sample of its increase, we give the following statistics of the amount that arrived at tide water on the Hudson River, from the canal collector's books:—

Year.	Lbs.	Exported.	Year.	Lbs.	Exported.
1834,	6,340,000		1841,	14,170,000	1,748,781
1835,	9,586,000		1842,	19,004,000	2,456,677
1836,	14,060,000		1843,	24,334,000	3,440,144
1837,	15,560,000		1844,	26,672,500	7,433,145
1838,	13,810,000		1845,	29,371,000	7,941,187
1839,	14,530,000		1846,	34,812,513	8,675,390
1840,	18,820,000	723,713			

Here is a large quantity, but a ready market is found. The increase of foreign exports is large. Up to last fall, the duty on it in England was $2 42 per 100 lbs. Sir Robert Peel's new tariff reduced it to $1 per 100, which will cheapen it to British consumers. The prices range in Liverpool, according to quality, from $10 to $15 per 112 lbs., and for three years past, the London market has never been overstocked but three or four times, which has lasted but two to five weeks. It is getting introduced into all circles, and driving the Dutch article out of market. Mr. Coleman, in his Agricultural Tour in Europe, says he found it gracing the tables of the lords and nobles, where, five years ago, it had never found its way. He dined with a marquis, who treated him to American cheese, American apples, American cranberries, and American cider in bottles.

It is now exported to the East Indies in boxes, found in Calcutta, and goes, with other notions, to the celestials of China. None but the real skim-milk grind-stones, however, can stand a hot climate.

COMMERCIAL REGULATIONS.

ILLINOIS AND MICHIGAN CANAL.

In pursuance of the provisions of the 15th section of the law of February 21, 1843, the undersigned, Trustees of the Illinois and Michigan Canal, have established the following rates of toll on articles to be transported upon said canal during the year 1848:

1. *Rates of Toll on Boats.*

	CENTS.	MILLS.
On each boat used chiefly for transporting common freight, 3 1-2 cents per mile,	3	5
On each boat used chiefly for transporting mineral coal, 3 cents per mile,	3	
On each boat used for transporting passengers, 6 cents per mile,	6	

2. *On Passengers.*

On each passenger 8 years old and upwards, 4 mills per mile,	0	4

Each passenger eight years old and upwards, shall be allowed sixty pounds baggage or household furniture, (if belonging to or used by such passenger,) free of toll.

3. *On the following named articles, toll will be computed according to weight, that is to say, the following rates per mile will be charged on each* 1,000 *pounds and the same proportion for a lesser or greater weight:*

	MILLS.		MILLS.		MILLS.
Ale,	10	Candles,	10	Heading,	3
Agricult'l. implem'nts,	10	Corn,	5	Hoops and materials for	3
Animals, domestic,	10	Cider,	8	Hubs, boat knees and bolts,	2
Anvils,	15	Clocks,	20	Iron, pig and scrap,	7½
Ashes, wood,	4	Charcoal,	5	Iron, wrought or cast,	15
Beef,	10	Coal,	1½	Iron tools,	15
Beans,	10	Coke,	2½	Ice,	1
Bread,	10	Clay,	2	Leather,	15
Beer,	10	Eggs,	10	Lard,	10
Butter,	10	Flour,	7½	Lime, common,	3
Baggage,	20	Flax,	10	Lime, hydraulic,	6
Beeswax,	10	Fruit, home,	10	Lead, pigs and bar,	20
Bacon,	10	Fruit, foreign,	15	Merchandize, including dry goods, groceries, hard ware, cutlery, crockery, & glass ware, and all articles not specified	20
Brooms,	10	Fish,	10	Manilla,	10
Broom handles,	10	Furniture, household,	20	Malt,	7½
Broom Corn,	10	Feathers,	15	Molasses, in hhds. or bbls.,	15
Bristles,	10	Flags, for chairs,	15	Meal,	5
B— Blocks,	12	Furs and Peltries, all kinds,	25	Marble, unwrought,	6
Barley,	10	Grease,	7	Marble, wrought,	15
Buckwheat,	10	Ginseng,	10	Marble Dust,	9
Blooms,	15	Grindstones,	6	Mill-stones,	12
Bran,	5	Gypsum,	6	Machinery,	15
Bark, tanners,	5	Glass and Glassware,	15	Mechanics' tools,	15
Barrels, empty,	10	Hemp,	7½	Manure,	8
Coffee,	15	Hides,	10	Nuts,	9
Crockery, in crates,	15	Horns and Tips,	10	Nails,	15
Cheese,	10	Hair,	10	Oats,	6
Crackers,	10	Hoops,	15	Oil Cake,	6
Cordage,	10	Hams,	10		
Cotton Bagging,	10	Household furniture, accompanied by and belonging to families emigrating,	15		
Cotton, raw, in bales,	10	Hay and Fodder	5		
Coopers' ware,	10				
Carpenters and Joiners' work,	10				
Carriages,	10				

	MILLS.		MILLS.		MILLS.
Oil, linseed and corn,	12	Seeds,	10	Tallow,	10
Oil, lard,	10	Salæratus,	10	Tar,	10
Ore,	8	Salts of ley,	10	Tomb-stones, not marble,	6
Peas,	10	Soap,	10	Trees, shrubs and plants,	6
Provisions, salt & fresh,	10	Sumach,	10	Tobacco, not manufactured,	7½
Pork,	7½	Skins, animal,	10	Tobacco, manufac'd,	15
Pot and Pearl Ashes,	10	Sleds and Sleighs,	10	Veneering,	10
Porter,	10	Saddle-trees,	10	Vinegar,	10
Palm Leaf,	10	Shorts and screenings,	5	Wheat,	7½
Potter's ware,	10	Strip stuff,	5	Whisky & high wines,	10
Pitch,	10	Spikes,	15	Wool,	10
Potatoes and other vegetables,	6	Starch,	10	Wooden ware,	10
Paper,	15	Shot,	20	Wagons and other vehicles,	10
Powder,	15	Steel,	20	White Lead,	10
Rags,	9	Spirits, except whisky,	25		
Rosin,	9	Straw,	4		
Rye,	6	Staves,	3		
Salt,	8	Sand, and other earths,	2		
		Stone, cut and sawed,	3		

4. *On the following named articles toll, per mile, will be computed by number or measure:—*

	CENTS.	MILLS.
On each 1000 feet (board measure) of lumber, per mile,	1	
On each 100 cubic feet of timber, hewed or round, if transported in boats,	1	
On same, if transported in rafts,	2	
On each 1000 brick,	1	
On each 1000 laths or shingles,		2½
On each 100 split posts or rails, for fencing,	1	
On each cord of wood for fuel,	1	2
On each cubic yard (27 cubic feet) dressed stone,		5
On each cubic yard (27 cubic feet) undressed stone,		2

In ascertaining the amount of toll chargeable on any article, the weight of the cask, box, bag, crate, vessel or thing, in which said article is contained, shall be added to the weight of the article itself, and the toll computed accordingly.

If two or more articles, chargeable with different rates of toll, shall be contained in the same cask, box, or vessel, the whole shall be charged with the highest rates of toll chargeable on any article so contained.

The rafting of timber on the Canal or the Feeders is prohibited, unless by written special agreement with the Superintendent of the Canal. Any violation of this order will subject the person violating it, to a penalty of ten dollars for every such offence.

W. H. SWIFT,
[Signed,] D. LEAVITT,
CHARLES OAKLEY.

Office of the Board of Trustees of the Illinois and Michigan Canal, February 21, 1848.

The following is a rough estimate of the probable rates of freight on leading articles, from Peru, Illinois, to Albany, New York, on the Illinois and Michigan Canal:

	PACKAGE.	Toll on Ill. and M. Canal	Probable fr't. from Peru to Chicago.	Shipping ch. at Chicago.	Lake freight.	Buffalo ch'gs.	Supposed E. Canal freight.	Aggregate.	REMARKS.
Flour..	bbl..	15	22	2	25	2	55	$1 06	Spring and Fall average.
Pork..	bbl..	37½	50	4	50	6	90	2 00	
Beef..	bbl..	30	42	5	50	6	90	1 92	
Provisions..	100lb..	10	16	1	18	2	30	67	
Molasses..	"	15	20	5	5	5	40	75	By vessel on the Lakes.
Sugar..	"	20	25	5	5	5	40	80	
Merchandise,	"	20	30	5	25	10	50	1 20	Steam on Lakes.
Furniture..	"	20	35	5	50	10	75	1 75	
Wheat..	Bush..	4.5	7	2	10	1	16	36	
Corn..	"	2.8	5½	2	11	1			Rate on Erie Canal not known.

THE NEW CORN LAW OF GREAT BRITAIN.

The new corn bill (9th and 10th Vic. cap 22) came into operation on the 27th June, 1847, and the duties payable under it, until the 1st of February, 1849, are as follows, viz. :—

If imported from any foreign country, not being a British possession.

WHEAT. *Average price.*	DUTY.	FLOUR AND WHEAT MEAL. *Per Cwt.*	*Per Bbls. of 195 lbs.*
under 48s	10s	3s 5 1-2d	6s 0-6-32
48s and under 49s	9s	3s 1 7-8d	5s 4-31
49s do 50s	8s	2s 9d	4s 9-24
50s do 51s	7s	2s 4 1-8d	4s 2-27
51s do 52s	6s	2s 0 3-4d	3s 7-10
52s do 53s	5s	1s 8 5-8d	3s 0-3
53s and upwards,	4s	1s 4 1-4d	2s 4-28

RYE, PEAS, BEANS, BARLEY, BEAR OR BIGG. *Barley Average.*	DUTY.	OATS. *Average Price.*	DUTY.
under 26s	5s 0d	under 18s	4s 0d
26s and under 27s	4s 6d	18s and uuder 19s	3s 6d
27s do 28s	4s 0d	19s do 20s	3s 0d
28s do 29s	3s 6d	20s do 21s	2s 6d
29s do 30s	3s 0d	21s do 22s	2s 0d
30s do 31s	2s 6d	22s and upwards,	1s 6d
31s and upwards,	2s 0d		

Barley meal, for every 217½ lbs. the duty to be equal to that payable on one quarter barley.

Rye meal and flour, for every 196 lbs. the duty to be equal to that payable on five-eights of a quarter barley.

Pea meal and bean meal, for every 272 lbs. the duty to be equal to that payable on one quarter barley.

Oat meal, for every 181½ lbs. the duty to be equal to that payable on one quarter barley.

If the produce of, or imported from any British possession out of Europe:

Wheat, barley, bear, or bigg, oats, rye, peas and beans, the duty shall be for every quarter, 1s.

Wheat meal, barley meal, oat meal, rye meal, pea meal, and bean meal, the duty shall be for every cwt., 4½d.

On and after the 1st of February, 1849, the duties hereafter named shall be paid, viz:—

Upon all wheat, barley, bear, or bigg, oats, rye, peas, beans, for every quar., 1s.

Upon all wheat meal and flour, barley meal, oat meal, rye meal and flour, pea meal and bean meal, for every cwt. 4½, and in proportion for a less quantity.

WEIGHTS OF PRODUCE, AS ESTABLISHED BY LAW OR CUSTOM IN ST. LOUIS.

Wheat,	bush.	60 lbs.	Hempseed,	bush.	44 lbs.
Corn,	"	56 "	Buckwheat,	"	52 "
Rye,	"	56 "	Castor Beans,	"	46 "
Oats,	"	35 "	Blue grass seed,	"	14 "
Barley,	"	48 "	Dried Peaches,	"	33 "
Potatoes,	"	60 "	Dried Apples,	"	24 "
Beans,	"	60 "	Onions,	"	57 "
Bran,	"	20 "	Salt,	"	50 "
Cloverseed,	"	60 "	Coal,	"	80 "
Timothy seed,	"	45 "	Honey, per gallon,		12 "
Flaxseed	"	56 "			

FOREIGN GRAIN MEASURES.

The following is a correct statement, in American bushels, of the various European measures of grain:

	American Bushels.		American Bushels.
English Quarter,	8 28-100	Leghorn Sack,	2
English Imperial Bushel,	1 4-100	Genoa Emine,	3 34-100
Dantzic Last,	87 15-100	Spanish Fanegue,	1 62-100
Amsterdam Last,	83 37-100	Lisbon Alquiere,	41-100
Hamburg Last,	91 43-100	Copenhagen Tonne,	4 74-100
Rostock's Last,	105 71-100	Swedish Tonne,	3 97-100
St. Petersburg Tchetwert,	5 49-100	Mayence Mattu,	3 37-100
Odessa Tchetwert,	6 6-100	French Hectolitre,	2 85-100
Naples Tomólo,	1 57-100		

THE EFFECTS OF FROST ON VEGETATION.

In a climate like that of Missouri, where vegetation is so liable to be injured by frost during the spring season, it is important to inquire whether any method can be devised to guard against this injury. It is known to those who have been in the habit of observing the effects of frost upon vegetation, that the injury produced does not always correspond with the apparent quantity that has been formed upon the tender plants. Sometimes a white frost will pass off with little injury, and again much harm is done when there was but little frost to be observed. By carefully noting the condition of the atmosphere, and the changes of temperature

which take place from sunrise until the frost shall have been melted, the causes why the effects produced are not in accordance with the apparent quantity might be ascertained with some degree of certainty. It has been frequently observed, that if the morning becomes cloudy, so as to prevent the sun from shining on the plants before the frost has melted, it passes off with but little injury. If this fact be well established, it naturally suggests the inquiry whether vegetation can not be preserved from injury by artificial means?

It is established, beyond question, as we believe, that the vitality of a plant is not necessarily destroyed by freezing. Turnips, parsnips, and other plants, freeze in the earth, and still retain their vitality, and vegetate in the spring. This is doubtless owing to the gradual thaw which takes place in the earth; but if a frozen potatoe is exposed to the atmosphere, to thaw, its vitality is destroyed. If the hand, or other part of the body, should freeze, and be suddenly thawed by the fire, the vitality of the part is destroyed, and it mortifies; but if immersed in a vessel of water, just drawn from the well, the thaw will take place slowly, and but little injury will ensue.

From these facts, we are led to conclude, that the injury to plants is induced by the sudden thaw, and not by freezing. Hence, if they should be protected from the rays of the sun, or wet with water from the well or spring, before they are effected by the rays of the sun, they would escape from harm. If these conclusions be correct, fruit and other tender vegetables may be preserved, with but very little labor, at least to an extent sufficient to preserve enough of the former for family purposes, and of the latter, for early use.

The following theory, in regard to the effects produced on frozen plants, by sudden exposure to the rays of the sun, is submitted by Johnson, in his Agricultural Chemistry, and appear to us to be a philosophical explanation of the phenomenon:—

1°. When the leaf, fruit, or tuber freezes, the fluid portions slightly expand in becoming solid, but the air in the air vessels contracts in at least an equal degree, and thus allows a lateral expression of the sap vessels sufficient to prevent lesion. When the temperature is slightly raised, the air expands but slightly, and ice is melted long before the gaseous substances reach their original bulk.

2°. But if the rays of the sun strike suddenly upon the leaf or fruit, the surface may at once be raised in temperature 30° or 40° F. The air will consequently expand suddenly, and before the sap is thawed may have distended and torn the vessels, and caused sap and air to be mutually intermingled.

3°. But the moment the sun's rays strike upon the green leaf, its chemical functions commence. It begins to absorb and decompose carbonic acid: and as in the frozen part of the leaf the circulation is not, and in consequence of the lesion cannot be, established, the chemical action of the sun's rays must be expended upon the stagnant sap; and hence those changes not only in the sap itself, but even in the solid parts, which are seen to take place in the withered leaf.

4°. Though not in a state of growth, the tuber of the potatoe contains the living principle, and there must be such a circulation going on in its interior as to maintain an approximate equilibrium of temperature throughout its substance. A sudden thawing of the exterior, will, as in the leaf, expand the air before the circulation can be established throughout the frozen mass. The solid, fluid, and æriform substances which nature has separated and set apart from each other, will thus all be intermingled, and from their mutual action, those chemical changes of which we know the starch of the potatoe to be susceptible, will speedily ensue;—in other words, the potatoe will rot.

We should be much pleased, in case a proper opportunity should occur, if some of our readers would make a practical application of these principles, and advise us of the result. The vegetable should be protected, as much as practicable, from light and air, as well as from the direct rays of the sun; and if water is used, it should be fresh from the spring or well—though cold water might be tried as an experiment.

HISTORY OF THE CULTIVATION OF THE POTATOE.

In an article on the "economy and habits of plants," published in the first number of the Western Journal, we suggested the opinion that the potatoe rot was induced by violence done to the economy of the plant, in propagating it for too long a time from the tubers. This article was written perhaps a year ago, at a time when the publication of the Western Journal had not been thought of; and not being designed for publication, we had not examined the history of the cultivated plant farther than our own observation extended in the Southern States.

Desiring to ascertain whether we had been misled by a false theory, we have since inquired into the history of the cultivation of the potatoe, and are happy to find that our views are fully sustained by practical experience.

The following paper from H. A. Parsons, of Buffalo, published in the Cultivator, of March, 1848, we think will be found interesting and profitable to every farmer.

We have appended the advertisement of N. S. Smith, of Buffalo, who offers many varieties of seedling potatoes for sale. In this advertisement will also be found an interesting account of his mode of producing them.

While the subject is before us, we will use the occasion to briefly notice a paper recently read before the St. Louis Horticultural Society, by Emil Mallinckrodt, from which we are happy to find that he sustains our opinion, that the potatoe is a native of the tropics. We must admit, however, that we were somewhat startled at the quotation from Preston's History of the civillzation of the Incas, in the beginning of the article; but we think friend Mallinckrodt has most trium-

phantly confuted Preston's statement, that "wild specimens of this vegetable might be seen springing up spontaneously amidst the stunted shrubs that clothe the lofty sides of the Cordilleras, till these gradually subsided into the masses around the base of the mighty cones, that ran far into the regions of eternal silence, covered with the snows of centuries." This is evidently a fancy sketch. Our friend has attempted to prove that it was impossible for the potatoe to perpetuate its species in so cold a region. He says: "If nature had placed the potatoe in the northern parts of North America, it would never have reproduced itself there, for the tuber would have been destroyed by frost every winter, and the proper seed of the plant would have reproduced itself but once, as *it requires three years before its tubers become mature enough to reproduce seed.* To preserve the plant, therefore, wise mother Nature placed it within a more temperate climate, *where winters are unknown.*"

We leave Mr Preston and Mr. Mallinckrodt to settle these points, however, as they best may—while we refer our readers to the advertisement of Mr. Smith, of Buffalo, in which he offers for sale seed gathered in September last, from balls produced from seed sown in the preceding April. Nor are we prepared to admit that if nature had placed the potatoe in the frigid zone, that its tubers would have necessarily been destroyed by the frost, for we have high authority for saying that the vital principle is not always destroyed by frost if the tuber remains in the earth and thaws with it.

Our main object in noticing this article is to correct the error into which Mr. Mallinckrodt has fallen, in stating that it requires three years to produce flower seed from the seedling potatoe. This error is important, because it is calculated to discourage farmers from sowing seed, instead of cultivating worn out varieties; and we think this error the more likely to do injury, from the fact that it has gone forth to the world under the sanction of the St. Louis Horticultural Society.

"RUNNING OUT OF VARIETIES—CHANGE OF SEED."

Messrs. Editors:—Under the above caption, in the last December number of the Cultivator, you express the belief, that plants and vegetables do not degenerate and that to propagate and continue them in perfection, a change of seed is not necessary. On the contrary, I had supposed that the science of botany and vegetable physiology had established the fact beyond controversy, that "any plant continually reproduced from the same seed on the same soil, will continually degenerate till it becomes extinct." And this important truth, in its application particularly to the potatoe, has been supported, if I mistake not, by the decided opinion of naturalists who have at all investigated the subject, and by the concurrent testimony of history for the last hundred and fifty years. If you will permit a little discussion of the subject, I trust, in case we do not come to the same conclusion, we shall amicably agree to differ; and as it is one that has an important practical bearing, an exhibition of some of the facts within our reach may do some good. It is to be deeply regretted, that in our agricultural literature,

we have no full history of the potatoe. There are many facts regarding it recorded in the treatises of Humboldt and Sir Joseph Banks; in the Edinburgh Encyclopædia, and in many English works of the last century; but such a history as the importance of the subject demands, tracing its propagation, changes, diseases, failures, and reproduction in different countries, is yet a desideratum; and he would be a public benefactor who should prepare it.

I would premise, that an occasional instance of success or failure proves nothing; it may be only an exception to the general rule. So if Mr. Cooper's case, upon which you comment, varies from the general law of nature, it affords but one fact against thousands on the other side. But Mr. Cooper fully admits that potatoes do degenerate, and attributes it to the use of poor seed; and describes one way in which farmers may obtain good seed. That farmers, as he asserts, generally plant their poorest potatoes, I do not believe to be true; in an intercourse among them of more than forty years, accompanied with much observation, I have found such cases to be the rare exception to their general practice. And yet a number of varieties have run out within the last fifty years, and several others, recently in high repute, are fast failing, and have nearly ceased to produce balls. The present disease in the potatoe was generally first noticed in this country in 1843. Soon after that, the agricultural census of this State was taken, which showed that the average product of the potatoe was only ninety bushels per acre—not half what it was twenty-five years ago; and that there had been a falling off of the potatoe crop in the State, of upwards of six millions of bushels, since 1840. See Cultivator, 1846, page 179. A similar decrease was shown in Massachuseetts and in Maine, where the average crop had formerly been two hundred bushels per acre. How is this to be accounted for, but by supposing a general degeneracy of the varieties now in use? A corresponding decrease in the crop is exhibited in the history of the plant in other countries and at other times. In a report made to the Royal Society of Agriculture in France, in 1819, by M. Le Comte de Neufchateau, Minister of the Interior, respecting the labors of Oberlin in the Ban de la Roche, a district of highlands in the east of France, it is stated that "the petotoe had been introduced after the terrible scarcity of 1709." But in 1757, "the original plant of the potatoe had degenerated to such a point as to yield scarcely any increase." To remedy this defect, recourse was had not only to the seed balls, but M. Oberlin "imported from different countries a store of potatoes, which replaced those degenerated; and these new productions continue in great demand at Strasburg market, on account of their excellent quality."

The potatoe appears to have been introduced from America into England first by Sir John Hawkins in 1545. Others were carried there in 1573 by Sir Francis Drake; and others again by Sir Walter Raleigh in 1586, who, in 1610, sent some to be planted on his estates in Ireland. They were first cultivated as a field crop in Lancashire in 1684, before which time they were confined to gardens,

and only used occasionally by the most wealthy. To Lancashire the field culture was confined many years before it was extended much to other counties; but in the early part of the last century, the cultivation of it became general in Ireland and Scotland. In Lancashire the discovery seems to have been first made, that the potatoe, by continued cultivation, became deteriorated both in quantity and quality, and the practice was adopted there, and simultaneously in Ireland, of renewing the root or tuber by planting the seed balls. This continued to be the practice among farmers through the whole of the last century, and during that time hundreds of varieties, that were good for a time, and are named in English treatises on the potatoe, entirely run out. "Farmers," says a standard writer in 1797, "hold it to be necessary to renew the potatoes from the seed once in fourteen or fifteen years; because, after that period, potatoes degenerate, and produce less and less, till they almost come to nothing." Judge Buel, in an essay, remarks;—"The duration of a variety in perfection, is generally computed at from fourteen to twenty years, though this period is sometimes prolonged by a change of soil or climate." The tendency to degenerate was not a mere opinion, but a fixed fact, attested by the general observation and experience of farmers. It was the same in various parts of Germany, and particularly in Nova Scotia, where the finest potatoes were formerly grown. In that Province little reliance is placed on the introduction of tubers from abroad; their experience tells them, that a reproduction from the seed balls is the most sure and profitable. And in no part of the world, probably, has this reproduction been resorted to oftener than there.

Mr. T. A. Knight, the former distinguished President of the London Horticultural Society, experimented with the potatoe many years, and in fact made it a particular subject of investigation during his life. In a treatise in the British Farmer's Magazine, he says:—"The first point to which I wish to direct the attention of the cultivator of the potatoe is, *the age of the variety;* for it has long been known, that *every variety cultivated, gradually becomes debilitated; and loses a large portion of its powers of producing*; *and I believe that almost every variety now cultivated in this and the adjoining counties, has long since passed the period of its age, at which it ought to have resigned its place to a succession.*"

Similar to the above is the language used in the Library of Useful Knowledge, Farmer's Series:—"It has been ascertained by repeated trials, that every variety of the potatoe, when propagated during a series of years, either by cuttings from the root, or by the whole tubers, is subject to degenerate: in some, the quality remaining good after the produce in quantity has become defective, whilst with others it disappears with the vigor of the plant."

In the year 1778, a disease called the *curl*, affecting both the vine and tuber, appeared among several varieties of potatoes in England, and soon spread through Scotland and Ireland, and subsequently developed itself more or less in this country. It occasioned a general panic, as much, perhaps, as the disease that has made such havoc for a few years past; and the multitude of books and pam-

phlets that were written on the subject, was beyond all precedent. Scientific men engaged in a great variety of experiments, and Parliament ordered investigations, &c., but nothing absolutely conclusive was ascertained as to the nature or cause of the disease, or the proper remedy. The more general belief seemed to be, that the disease was more or less induced by the age or deterioration of varieties, as those more recently produced from the seed were almost wholly exempt. As the result of experiments, it was acertained that varieties differed greatly in their nutritive properties—from thirty to fifty per cent.; that they also differed greatly in their vital energy and hardiness of constitution, some of equal age running out much sooner than others; and that the continuance of a variety and its exemption from, or power to resist disease, depended as much upon the above circumstances as upon its age.

Willis Gaylord, I think, (see Cultivator vol. 7, page 165,) expresses the belief, that "the formidable disease known as the curl, is the natural result of the old age of the variety, and indicates the failure of its vegetative powers." "The new varieties of this valuable root, those lately originated from seeds, have not, to our knowledge, been affected by the curl in the least. The inference, then, seems to be a fair one, that in the production of the potatoe, as in many other plants, a recurrence to the fundamental law of propagation, that from seeds, must be occasionally resorted to, in order to prevent deterioration. The new varieties of the potatoe, that have been introduced into culture in England and in the United States, from the seeds, exhibit a vigor and strength which none of the long cultivated kinds show." This last mentioned fact is confirmed by the statements of many English and American writers, and abundantly verified by experiments frequently made. In my reading, I have met with many passages similar to the following, which I extract from the Pennsylvania Farmer, published in 1804. Speaking of a field of potatoes raised from the seed, Eli Bronson, of Conn., says "Part of the field was better by one-half than the other part. In the best part, the seed was the second year from the balls; in the other part the seed potatoes were from the balls several years before, and had been planted yearly."

One of the most valuable communications respecting the potatoe, is found in Mr. Ellsworth's report from the Patent Office in 1844. M. Standinger, who had resided at Gros Flotbeck, near Hamburg, in Germany, near fifty years, paid great attention to the potatoe, and cultivated from the balls for *thirty-six years in succession*. His long experience and constant intercourse with practical men, and his habits of observation, give peculiar weight to his testimony. In view of the weakness in the vital energy of the plant, occasioned, he says, by constantly planting the tubers, he urges the importance of often raising new varieties from the seed; adding that those grown from the seed balls have a more vigorous growth than those obtained from bulbs, that have been used for seed for some years. His practice, which he minutely details, enabled him to raise as large a crop, both as to weight and measure, the first year from the seed, as could be ob-

tained by planting the bulbs. The opinion of the farmers, that it requires three or four years to bring to maturity and to a large size, potatoes raised from the seed, he considers not well founded, and attributes it to their unskilful method of cultivating them. And in relation to the disease among potatoes, that has spread over Europe the last few years, he expresses his belief that it is owing to degeneracy in the plant, and that the only effectual remedy is to start new varieties from the seed. In proof of this, he states "*that in the neighborhood of Hamburg, as well as also in Holstein, there is not the slightest trace of this disease to be seen, and no complaint of it has ever been heard; the reason of this being, that in the vicinity of Hamburg, there is always an opportunity of obtaining good seed potatoes,*" *&c.*

I did not intend, Messrs. Editors, to make any remarks about the cause or remedy of the present wide-spread disease in the potatoe; *that* I consider a distinct question from the one I had in view, and will leave it to be elucidated by other pens. That the older varieties of the potatoe are fast failing, and can be replaced only by renewing them from the seed; that the potatoe is susceptible of progressive improvement, so that there is reason to believe, varieties may hereafter be produced far superior in every desirable quality to any yet known; and that a large crop of good size for the table, may be raised from the seed the first year, so as to render it profitable to the grower; and that such seedlings, as a general rule, do remain fair and sound, while nearly all the old varieties are more or less diseased and running out, I consider facts well established. These facts have had a living illustration under my own eye during the last few years, while I have witnessed the operations and success of a neighbor, who has obtained the premium for the best and greatest variety of seedling potatoes at the two last Fairs of the State Agricultural Society. While I witness such facts, developed by persevering, well directed labor, I predict with confidence, that the potatoe will, or may, be perpetuated as long as seed time and harvest shall endure.

Buffalo, Jan. 4, 1848, H. A. PARSONS.

N. S. Smith's new and improved Buffalo Seedling Potatoes, comprising several sorts of Pinkeyes, Russets, Purples, Reds, Whites, Rareripes, Orange, and others not yet fully developed—all purely seedling—the product of a careful and expensive experiment of six years with the seed from the balls and its seedlings in alternate reciprocal culture. *Reciprocal,* because in each rotation the seed improves in seedlings, and the seedlings the seed. By this method of culture these potatoes have acquired a *healthy* and *early* character, are *very productive,* and of the *finest quality.* Having been for so many years in succession planted in April, (in their seed,) and early harvested, they have become *constitutionally* what they are, and with early planting, early digging, dry and airy storage, they will prove *sound* and *durable*—and the method continued, the development of new varieties and improvements will also continue.

Also, "*N. S. Smith's new and improved Buffalo Seedling Potatoe Seed.*" This seed was gathered in the balls last September, from a four acre crop of seedlings, from improved seed sown in April last. Six years alternate reciprocal culture with its seedlings, has given it an *early* and *very productive* character. It will produce seedlings of the size of small birds' eggs as early as in May. Season favorable, with good culture, it will produce the first season sown, about 200 bushels per acre, a good proportion of marketable size, sufficiently mature for the table, and seed balls in abundance. Tubers of the weight of 12 oz. were quite common among the young seedlings last fall, and on the roots of many single plants were found fully set and growing, hundreds of seedlings, though when so numerous, mostly small. In addition, this seed is impregnated (by the pollen in the blows,) with choice varieties, late from Germany, England, South America, Albany, Illinois, and home markets—mostly seedlings, interspersed for that purpose in the field; and it will represent when cultivated, all the distinct varieties grown in that field, besides an amusing freak of mottling, tinting and originality. The seed may be sown in April, like tomatoes, in a warm bed. Bleached cotton cloth, tacked on frames for potatoe beds, is better than glass. The beds should be open to warm rains and to all warm weather. The same hands in a given time will transplant with the young plants more ground than can be planted with tubers. (Particular directions accompany the seed.) These potatoes and seed were represented at the two last State and County Agricultural Fairs, and the first premiums awarded them. The cultivation of these potatoes and their seed will be continued at Buffalo with every possible improvement. Seedlings of approved varieties, carefully packed in chaff, and delivered at the wharf or depot in Buffalo, $5 per bushel—$10 per bareel. Transportation safe from frosts after February. Seed per paper—sufficient to produce 10 bushels—$1, with directions. It may be conveyed by mail with double postage. Orders and communications, post-paid, will reeeive prompt attention. N. S. SMITH.

Buffalo, January 13, 1848.

Extract from the Report of the Committee on Vegetables at the last New York State Fair.

"The committee on vegetables have reported, that for the greatest and best varieties of seedling potatoes of approved varieties, they award the premium of ten dollars ($10) to No. 73, presented by N. S. Smith, of Buffalo, N. Y. These potatoes were grown by the Rev. N. S. Smith, of Buffalo, who has favored us with the manner of their cultivation and production. He has been six years cultivating them from the balls that grow on top of the vines; his method is the alternate planting of the seed and tuber or potatoe, taking care to select always the best varieties. He has presented at the Fair as a specimen of his crop this season, thirty varieties of seedlings, all of them evidently of fine quality. His specimens of this year's seedlings, from the seed of his best seedlings, are very fine. He presents, also, fine specimens of seedlings from seed of seedlings grown last year in

Prussia, Germany, and fine varieties late from South America. Mr. Smith is confident, and the judges favor the opinion, that in his experiments a great improvement in the potatoe is already accomplished; and he hopes to be able to obtain permanently, potatoes, not only of the finest quality, but perfectly sound and hardy. The judges would recommend the attention of farmers to his specimens on the ground, and also to his mode of cultivation."

Signed by DAVID GRAY, Chairman.

DEEP PLOWING.

We have known few farmers who were not advocates of deep plowing. There can be no question of the many advantages of deep plowing, where the land will admit of it without injury to the vegetable mould. But it often happens that the sub-soil is so barren that by mixing it with the surface the whole mass is rendered sterile and unproductive, while in other cases the sub-soil possesses properties highly fertilizing. Hence, before venturing to mix a large portion of the subsoil with the surface, it would be prudent for the farmer to make an experiment by plowing a few rows to the depth required, and then grow a crop on it before hazarding the effects of deep plowing upon an extensive scale.

Where the sub-soil is found to do injury by mixing it with the surface, great benefit will be derived from plowing with the coulter, which may be run to any depth without danger of injury. This process loosens the sub-soil without mixing it with the surface, and gives the whole mass capacity to hold sufficient moisture to protect the crop against the effects of drouth, and also prevents the soil from being washed away by the summer rains—for it rarely rains so hard as to carry off the soil, until the whole pulverized mass is saturated.

Even in the deepest soils where the plow cannot reach the sub-soil, the use of the coalter, or some such instrument, is highly beneficial; for, after a few years cultivation, the earth immediately below the range of the plow becomes compact and forms a hard crust, which cuts off the communication of moisture between the pulverized soil and the earth beneath.

WHEAT AND CHESS.

We have never been able to give our assent to the opinion generally entertained by farmers that wheat, when injured by frost, or from any other cause, changes to chess. We have always considered such a change as opposed to the economy of nature, but have heard the fact so often affirmed by intelligent individuals, that although we have ceased to controvert, yet we have never adopted it as a truth.

We have extracted the following paragraph from the Cultivator, for the purpose of showing how easy it is for even men of close observation to be deceived in such matters. We trust that some lover of truth will institute a series of observations upon this subject, and settle the question one way or the other:

"Wm. Powers, of Youngstown, Ohio, gives the following experiment in the

Ohio Cultivator: He was about sowing his wheat, believing it to be perfectly *clean;* but, on being advised, concluded to brine and lime it first. When the brine was poured on, to his surprise he found chess floating thickly on the surface, and on being skimmed off, about a pint and a half were obtained from each bushel of seed. This would thoroughly seed any ground; but if the wheat grew well, the chess would be kept small and hidden; where winter killed, it would spring up, spread out and occupy the whole ground, and be attributed by superficial observers, to the change of the killed wheat to chess. The wheat, however, was thoroughly cleaned by brining, so that where it was winter killed and fly-eaten, no chess appeared."

HOLCOMB'S HEMP-BRAKE.

The increasing importance of hemp as an article of commerce, has stimulated many ingenious minds to study out some mode of improving upon the old method of breaking by the hand. Among the many experiments of using machinery for this purpose, we have seen none described which seems to promise a better result than the invention of Mr. L. F. P. Holcomb, of Delaware. This is a combination of the stationary bed brake with the rotary brake. "The hemp is fed in by hand, broken and cleaned with but one handling—the breaking and cleaning being done on separate cylinders—but the parts so arranged as that they are brought close together, and so adjusted as to only allow the machine to touch that part of the fibre that is to be acted on, thereby preventing its wear in the machine."

In a communication from Chauncy P. Holcomb, Esq., to the editor of the Journal of Agriculture, he says:

"Nothing can be more simple in its construction. The rudest and roughest hands can work it, and with little danger of its getting out of order. The cost of it will be only from seventy-five to one hundred dollars, exclusive of the horse power. It requires about two horse power. From my own experience in the use of it, I can confidently say and assure my brother farmers of the west, that the largest crop of hemp they grow, would hold out no terror, so far as the breaking and scratching of it was concerned, with the use of this machine."

The writer says that the machine is capable of breaking and cleaning, ready for market, about one thousand pounds per day, and that only two hands are required to attend it.

A description and drawing of this machine may be found in the May number, 1847, of the Journal of Agriculture, published in New York.

Mr. Obed Hussey, a machinist of Baltimore, has become interested in this machine, and will furnish it to those who may desire to purchase.

ST. LOUIS STEAM SUGAR REFINERY.

This we believe, is the most extensive manufacturing establishment in our city, and perhaps the most extensive of the kind, in either the south or west.

The proprietors, Messrs. Belcher & Brother, have politely favored us with the following description of the establishment, and also, with the statistics connected with the business of the concern for the year 1847.

The establishment with its out buildings, fronting on Levee street, occupies an entire block of two hundred and forty in width by 125 feet in depth, having streets on its north, east and south, and an alley twenty-five feet wide on the west. The main building is one hundred by eighty feet, seven stories. Engine and boiler house, ninety by forty-five feet, two stories. Retort house, seventy by thirty-five feet. Office and work-shops, sixty by twenty feet; all covered with iron roofing. There is a water cistern in the establishment which contains 100,000 gallons; water-pipes connect with the city reservoir; there are hose attachments in each story, and also an engine house with hose, to guard against fire. Connected with the establishment, is a cooperage employing fifteen to twenty-five coopers.

The arrangement of the establishment, evinces much judgment and skill, and there is a completeness in all the details, that is truly admirable.

The amount of product for 1847, was 4,860,000 pounds refined sugar of all kinds; 8,000 barrels sugar-house molasses; 1,000 barrels golden syrup; being upwards of 9,000,000 pounds of refined sugars, syrups and molasses.

The establishment at this time, is turning off about 500 tons of refined sugar, syrup and molasses, per month. The number of persons employed at the present time, in all the departments, including clerks, is about one hundred. The workmen connected with the refining department, are mostly Germans, who are employed at wages ranging from eighteen to twenty-four dollars per month.

Cuba and Louisiana sugars, are mostly used in this establishment for refining. The best qualities of loaf crushed and powdered sugars and golden syrups, are made entirely of Cuba sugars. The medium and common qualities of refined sugars and sugar-house molasses, are made from the raw sugars and syrups of Louisiana.

We are informed by the proprietors that the advantages in the price of labor, fuel and bone slack, enable them to compete successfully with the refineries of the south.

The proprietors have shown a sound and discriminating judgment in selecting St. Louis as a suitable place for their enterprize. The freight of the raw material to this point, costs but little more than would the manufactured article, and therefore the difference in the cost of labor, fuel, &c., is nearly all a clear advantage in favor of the manufacturers here over those of the south. This is especially the case in regard to the refined sugars and syrups consumed north and west of this place.

This is a practical illustration of our theory of a system of commerce and manufactures adapted to the Valley of the Mississippi. In this case the raw material is produced in the extreme south, but is destined to be consumed in the middle

and extreme northern districts. It must necessarily pay freight to St. Louis, as a point of distribution, therefore, instead of sending provisions to the south to feed the operatives, besides fuel and bone slack to be used in the process of manufacturing, the raw material is brought here where all these necessary appliances are abundant, and cheaper than in the south. This policy is based upon the true principles of political economy, and the proprietors of this flourishing establishment may well be considered as among the benefactors of the country, for giving a practical illustration of a principle which seems to be so difficult of comprehension in the west; and we sincerely hope that the advantages and profits accruing to them as individuals, may be commensurate with the public benefit.

The following is a table of prices as established on the 1st of March, 1848:

PRICES AND QUALITIES OF REFINED SUGAR.

Packed in bbls. and boxes.				*Packed in bbls. and half bbls.*		
Double refined Loaf,			9	Double refined and crushed,		9
Small Loaf,		No. 2,	8½	Crushed,	B,	8½
do.	do.	No. 4,	8¼	do.	C,	8
do.	do.	No. 5,	8⅛	do.	C, No. 2,	7½
do.	do.	No. 6,	8	Double refined, powdered,		9
do.	do.	No. 7,	7¾	Powdered,	B,	8½
do.	do.	No. 8,	7½	do.	C,	8

When less than 5 packages are taken, one cent per pound additional is charged.

On purchases of the above sugars to the amount of $500, 2½ per cent. discount; $1000, 5 per cent.

Clarified Sugars—White and Yellow, 5 to 7 cents; Sugar-House Molasses—in barrels and half barrels; Golden Syrup—in barrels, half barrels, and 10 gal. kegs. Farwell & Co., Second street, are agents for this city.

THE MISSOURI STEAM SUGAR REFINERY.

We learn from the proprietor of this establishment, Mr. Frederick Angelback, that he uses annually 500,000 lbs. Havana sugar, 1,000,000 lbs. Louisiana sugar, and 5,000 barrels of New Orleans molasses, and employs about twenty hands. This establishment produces double refined and refined loaf, crushed and powdered sugars, white and yellow clarified sugars, golden syrup and sugar-house molasses. The latter articles are put up in barrels, half barrels and 10 gallon kegs.

This establishment though not very extensive, is conveniently located, and well arranged for business, and has the appearance of thrift and prosperity. Messrs. Switzer, Platt & Co., No. 57 Main street, are the agents in this city.

ST. LOUIS COTTON FACTORY.

This is the only cotton mill within our knowledge, on the west side of the Mississippi river.* This establishment has been in operation about three years,

*We remember to have heard, some years since, that a cotton mill was about to be built in the northwestern part of Arkansas, but we do not know that it ever went into operation.

with sixteen hundred spindles. The mill employs about fifty hands and uses about six hundred and fifty bales of cotton per annum. We have not been furnished with the details of the business, but are informed by Mr. Adolphus Meier, one of the proprietors, that *labor is abundant and easily procured at prices as low as those paid by eastern manufacturers.*

This establishes an important fact, and is calculated to remove every doubt in regard to the advantages connected with the manufacture of cotton in St. Louis, for it would be an useless waste of time to undertake to prove that the raw material, provisions and fuel can all be obtained here cheaper than in New Engtand, and none can be so blind as not to perceive that if the fabric can be produced as cheap here as there, that the cost and charges incident to transporting it from the east, to say nothing of the profits to the merchant, are all saved to the western consumer. But more than all this, the establishment of manufactures affords a home market for western products, freed from the competition of other countries.

In collecting statistics for the WESTERN JOURNAL, we have been careful to inquire in regard to the facilities of procuring labor, and we have been uniformly answered that labor of every kind was abundant, and easily procured at fair prices. This is a state of things which those at a distance would not expect to exist in a country so newly settled and thinly inhabited. Most of the foreigners who come to the west land at St. Louis. Very many of them are mechanics and laborers who rely upon daily employment for subsistence, and as there is but little demand for farm labor, many remain in the city, and are compelled by necessity to labor for such prices as they can obtain. These are the principal causes of the abundance and cheapness of labor in St. Louis; and as long as foreign emigration shall continue to flow into the west, we hazard little in expressing the opinion, that labor will be as cheap, and probably cheaper, here than in any other city in the Union.

The proprietors of the St. Louis Cotton Factory appear to have acted with caution in the commencement of their business, and having taken ample time to test the experiment, they are about to add one thousand spindles to their establishment: When we take into consideration the sagacity and prudence of the proprietors, this increase in their business affords strong proof that it has been profitable.

We acknowledge our obligations to J. M. P., for his interesting communication upon the subject of Electric Light. We should have been pleased to have given it a place in the present number, but our matter had been arranged for the press before its reception. It will find a place in the May number.

We are greatly indebted to Col. Benton and Judge Bowlin, for many valuable public documents.

ST. LOUIS HORTICULTURAL SOCIETY.

THE Society having resolved to hold exhibitions at each stated meeting, to-wit: On the first Saturday in each month during the year, and that there shall be a general Spring Exhibition in May, and a general Fall Exhibition in September, they offer the following *schedule of premiums for the year* 1848:

FLOWERS.

For the best variety of	Camellia Japonicas,	$3 00
" " "	Azaleas,	2 00
" " "	Pelargoniums,	2 00
" " "	Fuschias,	2 00
" " "	Hardy Roses,	2 00
" " "	Perpetual Roses,	2 00
" " "	Cactæ,	3 00
" " "	Dahlias,	2 00
" " "	Chrysanthemums,	2 00
" " "	Carnations,	2 00
For the best collection of Green House plants,		10 00
For the best display, through the season, of Flowers, (hardy) cultivated in the open air,		3 00
For the second best do.		2 00
For the best Parlor Boquet, at Spring and Fall Exhibitions,		2 00
For the best Hand Boquet at do.		2 00

FRUITS.

For the best specimens of Strawberries, (not less than one quart)	5 00
For second best specimens do. do.	4 00
For best specimens of Cherries, (not less than one quart,)	3 00
For best specimens of Aprieots, (not less than half a peck,)	3 00
For best specimens of Raspberries, (not less than one quart,)	2 00
For best specimens of Plums, (not less than one quart of each variety,)	4 00
For best specimens of Nectarines, (not less than half a peck,)	3 00
For best specimens of Peaches, (not less than half a peck,)	6 00
For second best do. do.	4 00
For best specimens of Apples, (not less than half a peck,)	5 00
For second best do. do.	3 00
For best specimens of Pears, (not less than half a peck,)	5 00
For best specimens of Quinces, (not less than half a peck,)	2 00
For best specimens of foreign Grapes, (not less than 4 bunches,)	5 00
For best specimens native do. do.	5 00
For best specimens of Gooseberries, (not less than a pint,)	2 00
For best specimens of Currants, (not less than a quart,)	2 00

WINE.

For best specimen of native Wine, (not less than one gallon,)	30 00
For second best specimen do. do.	20 00
For best specimen of native Wine, (in a single bottle,)	5 00

VEGETABLES.

For best specimens of Asparagus, (not less than 3 bunches,)	2 00
For best specimens of Celery, (not less than two bunches of three heads,	2 00

For best specimens of Cauliflowers, (not less than three heads,)	2 00
For best specimens of earliet Cucumbers, (not less than six,)	2 00
For best specimens of Rheubarb, (not less than three,)	2 00
For the best display and greatest variety of Vegetables, at the monthly exhibitions during the year, -	5 00
For the best display and greatest variety of Vegetables at the Fall Exhibition, - - - -	5 00
For the best specimens of Melons, - - -	2 00

RULES.

I. Every person not a member of the Society, who shall offer samples in competition for premiums, will be required to pay in advance, to the Treasurer, an entrance fee of one dollar; and no member shall receive a premium who shall not have paid his dues to the Society.

II. No premium will be awarded in cases where there is no competition, unless, in the opinion of the committee, the articles are worthy of it.

III. The articles offered in competition, must be the production of the State of Missouri, or of the State of Illinois, and the result of the cultivation of the person exhibiting the same.

IV. Every article, so far as it is possible, must be accompanied by its proper name, and that of its producer; and the latter shall state, (if required by the committee,) in a satisfactoiy manner, any peculiarity of soil, situation or treatment, which attended the production.

V. No Flower, Plant, Fruit or Vegetable, shall be entitled to a premium, unless it possesses points of superiority; and the committee have the discretionary power of withholding prizes, if, in their opinion, the articles exhibited do not merit them.

VI. Every person exhibiting *Wine* for a premium, shall produce evidence, satisfactory to the Committee, that the wine exhibited is the product of the year 1847, and that he has manufactured a quantity of the same of not less than one barrel.

VII. Every person exhibiting a fruit for a *name*, will be required to accompany the same with a statement of the manner of its *origin* or discovery, and its local appellation.

VIII. Any person to whom a prize shall be awarded, whether in money, plate, or horticultural publications, may receive either, of like valuation, at his option.

IX. The several standing committees will be the judges of, and will be expected to report upon, the articles offered in their respective departments; and they will, therefore, be required to be present at each monthly exhibttion, for the purpose of examining the articles shown.

X. All articles exhibited for prizes, must be placed on the stands by 10 o'clock, A. M., and after they are arranged, will be under the exclusive charge of the committees, until the close of the exhibition.

THOMAS ALLEN, *President.*

A. B. CHAMBERS, *Recording Secretary.*

WESLEY FALLON. JAMES A. WRIGHT.

FALLON & WRIGHT

CARRIAGE MAKERS,

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Manufacturers of every description of Carriages. Material and workmanship warranted, and all orders promptly attended to.

☞ All kinds of Repairing done with neatness, durability and despatch.

COOTE & COZENS,

SURVEYORS AND CIVIL ENGINEERS,

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CLEMENT W. COOTE, County Surveyor. WM. H. COZENS, Dep. Co. Surveyor.

EDWIN ELLIS,

Corner of Second and Chesnut Streets, St. Louis, Mo.

WOULD respectfully call the attention of the public and his friends in general, to his assortment of superior Wines and Liquors, Wooden and Willow Ware, superior Groceries, &c. &c., Fresh Teas, Coffees, Chocolate, Sugars, Molasses, Mustards, Preserves, Pickles, Sauces and Ketchups, Luxuries, Bottled Cordials, Fruits, Sundries, Wooden and Willow Ware.

He is prepared to supply boarding houses, hotels, steamboats and private families, with the above articles as cheap as they can be furnished by any other store in the city.

March 1, 1848.

[Mr. Ellis brings to his business an experience of twenty years; an activity and vigilance unsurpassed. His store presents every variety from the different markets, which can tempt the apetite. Giving his business a personal supervision, he purchases the best articles in market, and sells none but what are satisfactory to his numerous customers. Such enterprize, activity and business habits deserve the patronage of all citizens.—Note by the Editors.

FRUIT TREES AND SHRUBBERY.

THE undersigned beg to call the attention of farmers and tree dealers generally, to their extensive assortment of fruit, shade and ornamental trees, as well as shrubbery, green house plants, &c. They have now in growing, over 700,000 trees, shrubs and plants, embracing the most extensive and select varieties ever offered for sale in the west. In calling attention to this establishment they would remark, that they have in view to continue to increase it in extent and variety, to the extent of any and every demand, pledging themselves that all varieties sold will be true to the name. Mr. James Sigerson, who gives his personal attention to this establishment, has spent more than twenty years in collecting the present variety, and during that time, has tested many of them very satisfactorily. Our prices for trees and shrubbery, will be made as reasonable as can be had at any establishment east or west. And when desired, trees will be carefully packed and delivered on board of boats free of charge.

Orders addressed to J. Sigerson, St. Louis, or to J. Sigerson & Bro., Carondelet, will meet with prompt attention.

March 1, 1848.

J. SIGERSON & BRO.

C. M. VALLEAU,

DEALER IN

STOVES, GRATES, HOLLOW-WARE,

TIN PLATE, SHEET IRON, WIRE, BLOCK TIN,

RIVETS, COPPER, TINNERS' TOOLS, MACHINES, &c.,

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IS constantly manufacturing, and has on hand, all styles of Carriages, which he will sell on the most favorable terms. The subscriber flatters himself that he can supply his customers with as good an article as can be bought in any market, from the fact that he imports all of the material parts direct from the east, and gives his undivided attention in the various branches of the manufactory, by which he feels enabled and willing to warrant his work equal to any. Citizens are requested to call and examine for themselves. The subscriber hopes that he may be worthy of their patronage. Cash paid at all times for second hand carriages, or taken in exchange.

ALBERT JONES.

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C. T. F. executes all orders in his line in the most workman-like manner, and on satisfactory terms. Spouting and Guttering particularly attended to on short notice, after tho most approved styles.

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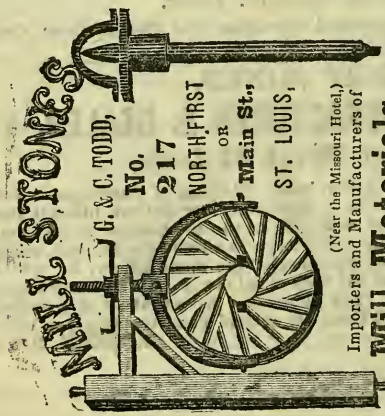

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☞ ALL ARTICLES WARRANTED. ☜

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No. 99 Chesnut Street, St. Louis,

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T. F. RISK,

ATTORNEY AND COUNSELLOR AT LAW,

***Office*—23½ Second Street,**

Between Pine and Chesnut Streets, in the same building with the United States Land Office.

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BOOK AND JOB PRINTERS,

Corner Main and Olive Streets,

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☞ They also manufacture Steamboat Cooking Stoves, of the most approved patterns, and of the best workmanship and materials; Britching and Chimneys made and repaired; Spouting and Guttering made to order. An assortment of tin ware always on hand.

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S. SETTLE. L. SHERWOOD.

THE

WESTERN JOURNAL,

M. TARVER & T. F. RISK, EDITORS & PROPRIETORS.

TERMS: $3 per annum, in advance.

PUBLISHED MONTHLY, AT NO. 23½ SECOND STREET,

Between Chesnut and Pine Streets, St. Louis, Mo.

THE WESTERN JOURNAL includes in its design every subject connected with Agriculture—the Mechanic Arts, Manufactures,—Internal Improvements and Commerce.

Attention will be constantly given to the collection of statistics in relation to agriculture, commerce, manufactures, mining, and, indeed, every other subject connected with the interests of all classes.

Original essays and communications upon any of the subjects embraced in our design, are respectfully solicited by the editors.

COMMUNICATIONS ARE INVITED UPON THE FOLLOWING SUBJECTS:

1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal Improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

MAY, 1848.

VOLUME I. NO. V.

THE WESTERN JOURNAL,

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS,
INTERNAL IMPROVEMENT, COMMERCE,

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1848.

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And at lower prices than any other establishment in the city.

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THE subscriber will receive tobacco at his warehouse, (St. Louis Granary) to be inspected by the Board of Inspectors, appointed by the State and county.

His warehouse is situated on Main street, above Cherry street, Nos. 258, 260, 262 and 264, convenient to the Levee; strong substantial building, and well adapted for tobacco. Fire proof and insurance can be obtained at low rates.

The subscriber will reduce the charges to the planter, on tobacco inspected at his warehouse, to one-half of what has heretofore been paid by them in this city—say from seventy-five cents to thirty-seven and a half cents per hogshead, and as soon as the tobacco is sold and weighed, will pay to the planter the proceeds of his tobacco, without any extra charge.

All tobacco purchased at his house, shall be turned out coopered to the satisfaction of the purchaser, and shall be delivered at any time during the day from sunrise to sunset. March 1, 1848. GEORGE W. JENKS.

JONATHAN JONES'

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Corner of Fourth and Chesnut Streets, St. Louis, Mo.

THE exclusive design of this institution is to thoroughly educate young gentlemen for business, and afford every facility (*known in the Counting-House*) to those wishing to become practically and scientifically acquaintd with the art of Double-Entry Book-Keeping, (with COMMERCIAL CALCULATIONS and PENNMANSHIP.)

The entire plan of instruction is new, and, in every patricular, different from that ordinarily adopted in schools and colleges. Instead of placing in the hands of the pupil a treatise containing Lectures, Rules, &c. to memorize or to copy, a *Practical Book-Keeper*, raised in the Counting-House, and trained to business from his fifteenth year, demonstrates the legitimate design of Debit and Credit, and then brings those principles to bear upon actual business transactions, such as occur in every Counting-House. The student, being first taught the true nature of the relati n that exists between the Merchant, the Salesman and the Book-keeper, copies his Blotter, Journalizes, Posts, takes his Monthly Trial Balances, &c., and proceeds in the practical discharge of his duties, as though he were conducting a set of books in an extensive establishment. Year after year (in epitomized forms) he continues the opening, conducting and closing of books, under every variety of circumstance that can possibly occur—he beholds himself a merchant, with limited resources, *though driving a successful trade*, laying his plans deep, he enters into various extensive speculations, but finally encounters great losses, and is foreclosed with heavy insolvency; he is then associated with a capitalist in business, and resumes his accustomed duties as accountant, &c. The practicability of this course, its superiority over all others, and its perfect adaptation to the making of thorough accountants, has been fully tested in this community during the last eight years. Hundreds of Young Gentlemen, out of employment, Mechanics, unable to follow their pursuits, Salesmen, Second Clerks, &c., have been qualified for the Counting-House and Steamboat Clerkship, and placed in situations worth $600, $800, $900, and $1,200 per annum.

N. B.—To whom reference will be given by calling at the School Room.

March 1, 1848.

THE

WESTERN JOURNAL,

M. TARVER AND T. F. RISK,

EDITORS AND PROPRIETORS.

VOLUME I. MAY, 1848. NUMBER V.

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ART. I.—SLAVERY IN THE UNITED STATES.

Although man is so constituted that by the aid of artificial means he can exist upon every part of the globe, yet, both his physical and moral condition is greatly influenced by climate and other physical causes. The effects flowing from these causes, and the influence which they exert over the individual and social character of the inhabitants of the several divisions of the earth, are legitimate subjects of inquiry for the natural and social economist, and address themselves to the consideration of the people of every country.

These influences impress themselves upon the moral, political and religious institutions as well as upon the philosophy of every people, and finally give direction to their destiny. The statesman, the philosopher, or the divine, who has not made himself acquainted with this subject so as to enable him to perceive and appreciate its bearings upon the human character, is, to a great extent, incompetent to discharge the duties of his functions, and therefore liable to do injury, rather than to promote the cause in which he labors. The inhabitants of every clime are continually operated upon, and acting under these influences, without perceiving their force; and each wonders at the stupidity of those of other and different climes, in adopting and observing habits and customs so different from their own. He, therefore, who shall endeavor to remove and obliterate these influences must labor in vain; they are part and parcel of man's nature, and cannot be eradicated. They are, however, subject to modification, and are the legitimate agents to be used in giving direction to the genius and civilization of the people of every climate.

To the people of the United States, this subject is one of more than ordinary interest, arising from the fact that our territory extends through so many degrees of latitude, and embraces so many different interests.

The population of the United States, although coming principally from the same region, began to exhibit the effects of climate shortly after its settlement in

this country. In traveling from Maine to Georgia, the change is so gradual that we scarcely perceive it until we have arrived at the end of our journey; then, if we look around us, we shall find ourselves in the midst of a people differing from those we had seen in Maine in almost every thing which meets the eye, or addresses itself to the ear. We shall find the people here engaged in pursuits adapted to the climate, and cherishing an institution which the northern people have long since abolished, because it was not suited to their latitude. The philosopher would appreciate these facts and perceive the true cause; but he would find no reason to condemn the southern people for retaining this institution, nor would he discover any merit in those of the north for abolishing it. He would see that both had acted in obedience to the laws of natural economy, operating through the agency of climate, and would be surprised to find that this institution should have become the subject of much excitement and unkind feeling between the people of the north and those of the south.

Looking with painful emotions upon the excitement and disquietude arising from the institution of slavery in the southern States, and being satisfied that the origin of this excitement can be referred to no adequate and just cause, we are induced to offer the result of our reflections upon the subject. In doing so, we shall endeavor to place it upon what we esteem its true basis, and discuss it upon the principles of natural and social economy.

Man requires more exercise, as well as more food and clothing, in a cold than in a hot climate. These demands stimulate him to both physical labor and mental improvement. But in high northern latitudes the long and severely cold winters allow of so little profitable employment in the year, that the labor which can be performed during summer is barely sufficient to supply the wants of winter, and the progress of civilization is retarded from a lack of accumulated wealth, and of commercial and social intercourse with more favored climes. As we proceed towards the equator, the physical inducements to labor gradually lose their power, and moral and social inducements are substituted in their stead.

In the temperate zone these two—the physical and moral inducements—combine to produce the highest state of civilization to which man is capable of attaining. Here the necessity of providing for winter is sufficient to stimulate him to labor during the other seasons, and his labors producing more than is required for the mere wants of existence, a surplus accumulates and constitutes wealth; and thus a portion of the inhabitants are, to some extent, relieved from the necessity of appropriating all their time and labor to the production of articles of mere necessity, and employ themselves in improving the mind and in producing works of art.

Proceeding still further towards the equator, we find man in the torrid zone almost exempt from the necessity of labor. Here nature produces spontaneously almost every thing which he requires for food; he requires neither shelter nor clothing to protect him from the cold; and lacking those powerful physical influ-

ences which stimulate the inhabitants of colder climes, he becomes indolent and prone to relaxation of both body and mind. His propensities and passions, stimulated by the climate, gain the ascendancy over his moral nature, and he remains in ignorance, and the worst state of barbarism, perhaps, known to man.

Although this is a condition naturally arising from climate, it is not, however, a necessary and inevitable result. In regard to climate, the inhabitants of the tropics were more favored than those of any other part of the earth; relieved from the strong physical necessity of labor, which was imposed upon the inhabitants of colder regions, they were in a condition to appropriate more of their time to intellectual improvement, and to the general purposes of civilization. The advantages afforded by the climate were equal to a vast amount of accumulated wealth, which, if properly appreciated, would have made them the most enlightened people of the earth. From these causes we should naturally look to the region of the tropics for the earliest dawnings of civilization; and, so far as we can trust history, this was the case in the old world, and the monumental ruins of Central America bear evidence that it was also the case upon this continent. It may be asked why this early state of civilization was not sustained and improved? We answer, because the natural advantages of the climate, constituting a condition of wealth similar in its consequences to the large accumulated wealth in other climates, the inhabitants of the former, like the wealthy individuals of the latter, indulged in idleness and vice, which sooner or later, inevitably results in degradation. As well might we expect that the rich and luxurious citizen of Rome, in the days of the Empire, would go out to labor, as that the African would leave the cool shade, and expose himself to toil under the direct rays of a tropical sun, unless urged to it by some powerful physical cause. And hence it is, that slavery has always existed in some form or other in Africa, and other tropical regions. And whether the institution be *domestic or political, the rod is the same and only impelling power*, and without its influence the inhabitants of these regions cease to labor and to enlarge the means of supporting an increase of population. By continued wars, and the sale of captives into slavery, the increase of population is prevented; and thus they are made the instruments of thrusting themselves out of the land which they refuse to cultivate, and are compelled to labor in foreign climes. These are the causes which have sent the Africans to our shores, and placed them in the hands of our ancestors, from whom they have descended to the present generation. That the condition of the Africans has been greatly improved by their transportation hither, no one can doubt who has any knowledge of the present condition of the race in this, and their own country. And, while working out their own improvement, they have been made a powerful agent in promoting the advancement of civilization throughout christendom, and, perhaps, throughout the whole earth. By the great surplus which they produce over the quantity which they consume, an immense addition is annually made to the wealth and comfort of all nations who, either directly or indirectly, participate in

our commerce. This, of itself, is almost sufficient to account for the unparalelled improvement which has taken place within the present century in the condition of the poorer classes of the countries with which we have commercial intercourse. Without this institution it is altogether probable that neither cotton nor sugar would, up to the present time, have been cultivated in this country as an article of commerce. Hitherto slavery has been the most important agent in developing the resources of every part of the country, as well in the north as in the south; and we can perceive no reason why the agency of slave labor will be less important to our future prosperity than it has been to the past. The mind of the civilized world is awakened to the subject of ameliorating the general condition of labor; and while this mighty change is progressing, it is important that it should be sustained by some great source of over production, like that of slave labor in the United States—for, if such a revolution should happen as would materially reduce the quantity of cotton grown in the United States for a series of years in succession, it would produce a revulsion in the leading pursuits of both Europe and America, which would seriously retard the improvements of the age.

But with all these causes and effects in view, there are those in the United States, who are ever laboring to produce excitement in regard to Slavery. The original agitators were of that unfortunate class of individuals who are more zealous than wise. Seizing upon the abstract proposition that slavery is an evil, they overlook all the causes which may have led to its existence; they are blind to the effects which it is producing upon the slaves, as well as to the advantages which are evidently accruing to the rest of the world; and more than all, with a total disregard of the rights of the owner, and the laws of the country, and at the hazard of a servile war, they would set the African free. These are the fanatics, whose numbers we believe to be small, and we sincerely hope that no occasion will arise that will tend to increase them. But, although few in number, they are ever active and vigilant in pursuing their object, and notwithstanding they are blind in regard to every thing else, they are shrewd in regard to this. They understand as by instinct the kind of individuals upon whom they can operate and bring over to their faith, and are ever on the watch to acquire influence in the politics of the country. The demagogue, (a fanatic also in one sense of the term,) always upon the look out for strength, is ever found ready to serve those who will promise him support—and thus a league is formed between these two disorganizers, whereby the quiet and happiness of a nation is disturbed.

We are, however, constrained to believe that there are very many good and sensible individuals among those who are denominated abolitionists, who conscientiously believing that slavery is an evil—and, perhaps, a national sin—and not having examined the subject, feel it their duty to act with the opposing party, without apprehending the injury which may result from such a connection. Such individuals are still open to reason, and to them we desire to address our views.

In the first place, it requires no argument to prove, that the government of the United States has no power to control in any way, the subject of slavery in the several States. Nor can it rightfully object to the admission of the people of a territory into the Union, upon the ground that their constitution recognizes the institution of slavery. Nor do we admit that within the spirit of the constitution, Congress possesses the right to prohibit slavery in the territory of the United States; for the reason that all territory belonging to the general government ought of right to be free to the citizens of every State, and that they ought to be protected in the possession and enjoyment of any property, the right of which was guaranteed to them by the State from which they emigrated; otherwise the owner of slaves could not settle in a territory without making a sacrifice, not required of him from a non-slaveholding State.

It is not, however, our purpose to argue a question of constitutional law. Congress has long since agreed upon a line of compromise, and we hope that all parties will religiously observe it. But all this discussion in regard to the territorial boundary of slavery, is a war with shadows. There is no danger that slavery will proceed north, and if it were legalized to the latitude of forty-nine degrees it would make little or no difference in the final result. Natural laws will in time overrule all legislative enactments. White, or free labor from the north, will press upon slave labor and take its place, until the white laborer has reached a climate uncongenial to his nature. By the operation of these laws, the more northern slaveholding States will abolish slavery, and as the Africans move south, there will continue to be fewer white men mixed with them, until the two races shall be separated; this result must sever the relation of master and slave, *and change the domestic into a political institution.* This will place within the tropical regions of the American Continent, a race of men who in their physiological conformation, were created for the climate. Enured to labor, practically acquainted with the useful arts, and purged from the barbarous customs and superstitions of their race in other countries, they will make the tropical portion of America the most productive part of the globe. The continent being narrow in this region, this population will occupy it from sea to sea, and hold a position which will enable it to supply both sides of the continent with tropical products, from Kamschatka to Terre del Fuego, on the west, and from Cape Horn to Labrador, on the east. By no other race of men can this region be made so productive, and their location here will give immense force to American commerce, and to American institutions. For the purpose of consummating this result, the United States must continue in some way, to influence and control the African population. The particular character and form of the relation which will exist between the two races must be determined by the circumstances as they arise.

But the time must arrive, when by the increase of the population of both North and South America, the white race will press upon the tropics from both sides, as to crowd the increased population of the black race. This will induce the

latter to emigrate, and turning their faces east, they will cross over to Africa and repossess themselves of the land from which their ancestors were thrust by reason of their barbarism. In their return they will carry with them our political, social and religious institutions; and thus Africa colonized from America will become civilized and christianized through the medium and agency of slavery. Before returning to Africa, they must pass from a state of bondage into a state of comparative freedom, that they may learn the duties of citizenship, and the science of government—for he who has been a slave, is unfit to be a citizen. In support of this proposition we have the example of the Children of Israel, who under the direction of the wisest law-giver the world has ever known, or as perhaps we ought to say, under the immediate direction of the Almighty, were not allowed to enter the promised land until all those who were born in slavery had been wasted in the wilderness.

Thus we have sketched what we suppose, and believe to be the future destiny of the negro race upon this continent. These views are not offered in the spirit of prophecy, but we esteem them as fair and legitimate deductions and conclusions from the laws of natural and social economy, which in the end we believe will prevail over all human power.

When we contemplate a map of the globe we perceive the continent of America stretching from north to south, through every habitable climate, between the two poles; and if the fact be true, and we believe it is, that the white race is not adapted to the labor of the tropics, and that owing to his color and physical conformation, the black is especially fitted for it, no proposition can be more clear than that for the purpose of developing the resources of the continent, to their greatest extent, besides conforming its population to the laws of climate and of natural economy, it was necessary that the black race should, in some way, be brought to this continent. They possessed no means of coming here as free men, and could only come as slaves, and the vices by which they had been degraded, prepared them for that condition. They could not be sent direct to the tropical regions of America, for the inhabitants there were in but little better condition than themselves, and were incapable of improving their condition. They were, therefore, made the agents of developing the resources of a more temperate clime, and of hastening the progress of modern civilization. And while aiding in this great work, it was designed that they should become thoroughly purged of the superstitions and barbarous customs of their own land, and learn the arts of civilization among the most enlightened people of the earth.

Under this view of the subject we are fully persuaded that any plan contemplating the emancipation of the slave without connecting with that plan his transportation from the country, is calculated to injure or retard the cause of final emancipation. And that even those charitable and philanthropic individuals who liberate their slaves from the best of motives, act unwisely, unless at the same time they make adequate provision to send them to Africa under circumstances

which will enable them to sustain themselves as intelligent members of an enlightened community. It is the policy of all the slave States to inhibit free black persons from coming within their limits to settle, and therefore, as slavery progresses south, the free blacks must be left among the whites; this is an unnatural condition, and one, in our estimation, much more to be deplored than bondage. Thus circumstanced, they necessarily constitute a caste destitute of political privileges, and by reason of their complexion they can have no social intercourse with the whites upon equal terms, and hence are deprived of the strongest inducements to moral improvement. With such limited objects of aspiration, it is not in the nature of things that they can ever become respectable; and while they become degraded in their own character, they are contributing nothing by their labors to benefit the balance of mankind. That this part of our colored population is degraded and useless, both to themselves and to the country, without the slightest hope of amendment, will be attested by every intelligent individual who has had sufficient opportunity of observing them; and it may be reasonably doubted whether, if the entire mass was transported to Africa in their present condition, they possess sufficient intelligence and energy to sustain them in a state of civilization.

We admit the abstract proposition that slavery is an evil; but we deny that as citizens or christians, men have a right to remove this evil by transgressing both the moral and civil law. More especially when, as in the present case, in all human probability, the removal of the evil complained of would be the means of inducing others more to be deplored.

In regard to the civil right of the slaveholder to his slave, it rests upon the same foundation as does our title to the soil in this country—both have been acquired upon the same principle; and as well might it be expected that the present owner of a farm in New England would yield it up to the descendant of some Indian tribe from which it was obtained some two hundred years ago, because no valuable consideration was paid for it, as to expect that the present owner of a slave would set him free, because it was proven that his ancester was sold into bondage without his consent. The aborigines of America, resisting every influence designed by the Creator as inducements to civilization, and disdaining to till the soil for the support and increase of the race, were doomed to surrender the country to a people who were willing to cultivate and extract from the earth the means of supporting a larger number of human beings, and a higher state of intelligence.

Had such abstract right to the soil as the Indians claimed, been recognized by the Europeans, and had their objections to the settlement of the white race been regarded, one-third of the habitable and productive portion of the globe would have remained unappropriated to the use of man; and the provision made by the Creator for the support of a very large number of human beings would have remained unavailable. Such a state of things would evidently have contravened

the laws of natural economy; for God hath given to those who obey these laws "the heathen for an inheritance and the uttermost parts of the earth for their possession."

The African race were in the same category with the American Indians: they had resisted all the influences ordained by the Creator, as inducements to intellectual and moral improvement. Instead of availing themselves of the advantages which the climate and the natural productions of the earth afforded them, they refused to labor; and when these natural resources were exhausted, like the Indian, they disdained to cultivate the soil for the purpose of producing the means of sustaining an increased population; and hence they sunk into the lowest state of barbarism, and became the subjects of the most odious vices and superstitions. From these causes they were divided into small tribes, and by desolating wars, and the sale of captives into bondage, they kept the increase of population within the natural resources of the country, thereby violating the laws of both natural and social economy. *Under such circumstances, had the climate of Africa been congenial to the white race, the civilized white man, acting under the same laws which brought him to America, would no doubt have taken possession af Africa.* But this part of the earth was created for the black race, (or perhaps we should say, the black man was created for the country,) and hence, it was protected against the incursions and settlement of the whites, by the peculiarity of the climate. This being the case, the barbarism and cupidity of the people became the agents of thrusting themselves out, and sending them in bonds to foreign lands. Not so much, perhaps, to expiate in a state of slavery the enormity of their crimes, as to enforce upon them the arts of civilization, and a knowledge of the christian religion. In this we can perceive a mercy and kindness extended to the African which appears to be denied to the Indian; for, while we see a prospect of improvement and restoration to the African race, nothing less than total extinction seems to threaten the American Indian. And thus the Africans in bondage are made the agents of producing the means of facilitating the progress of civilization in other lands and nations, while at the same time and by the same means, they are preparing the way for the civilization of themselves, and of their own country. Those who do not, or will not recognize the hand of Providence in this two-fold purpose of African slavery, appear to us as blind as were the Africans themselves, before their expulsion from their own land.

But these pseudo philanthropists insist that it is time to set the bondsman free. How do they know this? What warrant have they for this opinion, and how dare they sit in judgment between offended Deity and an offending people? Have they penetrated the designs of Providence and discovered the fact that all the benefits intended to be derived to other nations from African slavery, have been accomplished? Or, are they prepared to say that if the Africans were now liberated from bondage, that they are sufficiently enlightened to enable them to sustain a state of civilization? We are fully persuaded that these things have

not yet been accomplished, and that the time has not arrived for the emancipation of the African of the United States; he has not yet worked out his destiny, or fulfilled the years of his captivity. When the fulness of time shall arrive, the relation of master and slave will be dissolved by the operation of natural laws, acting upon the condition of both, as well as upon the country to which they reside. When these things conspire to bring about the emancipation of slavery, then, and not until then, will the fruit be ripe—and it will require no foreign hand to pluck it. The time and mode of finally dissolving this relation is beyond the scrutiny of man, but if left to the direction and control of natural laws, it will be effected without violence.

We are fully warranted in saying, that as christians, these agitators are greatly violating the precepts of the religion which they profess. In agitating a discussion tending necessarily to disturb the relation of master and servant, creating bitterness and jealousy in the heart of the master on one hand, and dissatisfaction and disobedience on the other, they are doing that which they would not that others should do unto them in like circumstances.

In aiding slaves to escape from the service of their masters, they violate the laws of the land, and disregard that precept which requires submission to the laws that be. Instead of exhorting servants to obey their masters as did the great Apostle, they excite him to rebellion and disobedience. Paul returned the slave to the master, but these modern fanatics seek to steal him away.

The violation of these, and many other of the plainest precepts of christianity, are so gross and palpable that there is no ground left whereupon the most ignorant can excuse themselves, and those who are guilty of such practices stand convicted before both God and man, of unmitigated crime.

We exhort such as have attached themselves to the anti-slave party from pure motives, (and we doubt not, but there are many such) to examine this subject carefully and without prejudice, both as citizens and christians, and if they find that the prominent leaders in this agitating subject are violating the laws of the country, as well as the most obvious precepts of christianity, then let them withdraw from all fellowship and communion with them.

Let none be deceived by that most dangerous of all doctrines, that the end justifies the means; this doctrine is reversed in the christian philosophy, which teaches that the means alone can justify the end.

If it should be objected that the period of emancipation which we have endeavored to foreshadow, is altogether too remote and improbable to satisfy the ardent zeal of the philanthropist, let it be remembered that the destiny of nations is controlled by certain irrevocable laws; such as we have endeavored to illustrate, and which are usually denominated "divine providence," and that these laws must ultimately prevail against all human obstruction, and that obedience to these laws constitutes the highest wisdom of man, and resistance his greatest folly. If these laws should be appreciated and observed by our people, we must rule the

destiny of this continent, not by the sword, but by the force of our institutions, which will open the way before us as speedily as it will be safe and expedient to extend our borders. The several governments within the tropical climate of America may almost be said to change with the seasons; nor is there any indication of their becoming more permanent in their character. Worn out and ruined by these revolutions the people will, in due time, seek protection under the physical and moral power of the United States, and receive our black, as well as our white population.

If our population should continue to increase at the same rate as it has since the year 1790, we shall number three hundred millions of inhabitants in about ninety years from the present date. Forty millions of this number would be blacks. Now, it must be evident to every observing mind, that forty millions cannot be profitably employed in the present slaveholding district of the United States, and that long before they reach that number, they must be liberated, or otherwise progress south under our control. We perceive no reason to doubt that under our free and enlighted institutions, the increase of our population will sustain its present rate, until it reaches three hundred millions. If this should be the case, there are many now in being, who will live to see the destiny which we have supposed to await the American slave, consummated.

The scheme of colonizing the free people of color in Africa according to the views of the colonization society, is alike beautiful and philanthropic; and altogether worthy of the great and good men who have advocated and sustained it. If wisely managed, it is capable of doing great good, as well by relieving the country of a portion of this colored population, as in forming a nucleus for the settlement of the race there, when they shall begin to emigrate upon their own resources. If this colony should be sustained, and gain strength under the auspices of the society—aided by our government—it will constitute the germ of the future civilization of Africa. And, although composed of humble, and mostly of illiterate constituents, they will commence their career at a higher point in the scale of civilization than have any other people upon earth. Much higher than did the Anglo-Saxon race on this continent; for they came here under the influence and auspices of a monarchical government—of an established church, and laws recognizing an aristocracy, and the rights of primogeniture, with other customs and prejudices detrimental to the advancement of civilization. The African colonist will be free from all these hindrances in the beginning, and will start in advance of every other people upon earth, except ourselves. Under such circumstances we are warranted in expecting the best results.

Here, then, is a labor in which all may unite with a clear conscience, and without offence to any. The field is sufficiently extensive to give full scope and employment to the sympathy and charitable efforts of the anti-slave party; and one from which, if cultivated with skill and diligence, they may safely calculate

to reap a sure and rich harvest. Then let them unite in this great work, and redeem themselves from their past follies.

We freely admit that we feel no apprehension that the anti-slave party will be either the cause of dissolving the Union, or of materially changing the destiny of the slaves; still we look upon their efforts as the cause of much evil. The agitation of this subject is calculated to alienate the feelings of the people of the south from those of the north. The southern people feel that their rights have been wantonly assailed, and that their peace of mind and personal security, as well as their property, are endangered by the unwarrantable practices of those of the north. The agitation of the subject in the councils of the nation tends to establish a system of sectional legislation, and to embarrass the action of Congress upon all subjects of a general nature; and statesmanship, with a few honorable exceptions, consists in legislating for the territory either north or south of Mason and Dixon's line, and in managing so as to obtain an advantage over those who happen to live on opposite sides. These are evils greatly to be deplored, and deserve the condemnation of every good patriot. Agitation is the bread of life to the mere politician and fanatic, and if the people of the United States were wise, they would deprive these worthies of this pabulum, and by keeping quiet, permit them to die.

Thus have we endeavored to trace the institution of slavery in the United States to natural laws, and to show that it is the consequence of disobedience. We have also endeavored to show, that the time has not arrived when the slave can be liberated with advantage to his present or future condition; and have sketched out what seems to our mind, the natural and final destiny of the African race. We have also suggested some of the evils arising from the present agitation of the subject. Our object is to direct the minds of the agitators to what we believe the true and philosophical mode of considering the entire subject, and if possible, to guard them against the commission of evil, while they are aiming to discharge what they esteem a duty.

We most ardently desire to remove every cause which, in any way, tends to cherish sectional prejudices, and sectional legislation; for we are fully persuaded that these constitute the most formidable and dangerous obstructions which lie in our way to national greatness. Before these causes can be removed, we must adopt and inculcate a more universal system of philosophy. We must study the principles of natural and social economy, and, as far as may be practicable, conform our present incongruous and ill-digested systems of morals and philosophy to the laws of nature, as promulgated throughout her works. From these, and from the Holy Scriptures, of which they are the best exponents, let us draw our rules of action, pure and unpolluted from the ignorance and vices of the past. Without this, we cannot become Americanized in the true meaning of the term. We cannot possess that universal sympathy which is required to make us one in heart as we are in name, and which alone can give full force to our institutions.

ART. II.—ELECTRIC LIGHT.

MESSRS. EDITORS:—I here furnish you an account of some experiments with the Electric Light. It is to be regretted that the subject has not elicited more votaries in its favor than it has, as it is calculated to supersede both the use of oil and gas. It is now about nine years ago since M. Achereau made his first public exhibition of the Electric Light, in the *Place de la Concorde*, in presence of the authorities and some four or five thousand of the inhabitants of Paris.

On one of the bases of the statues called the *Pavillion de Lille*, a glass globe, of apparently twelve or thirteen inches in diameter, with a moveable reflector, was fixed in connection with a voltaic battery; and, at a little before nine o'clock, the electric fluid was thrown into it by a conductor. At this time all the gas lights in the *Place*, (one hundred in number,) were burning. As soon as the electric light appeared, the nearest gas lights had the same dull appearance that oil lamps have by the side of gas. Soon afterwards the gas was extinguished and the electric light shown forth in all its brilliancy. Within one hundred yards it was easy to read the smallest print; it was, in fact, as light as day. The astonishment of the multitude was very great, and their delight as strong as their astonishment. The estimate of the power of the electric light, (made by scientific men,) is, that it is equal to twenty gas lights. The cost of apparatus would not amount to one-twentieth of the cost for the generation and application of gas. The electric light gives out no bad smell; it emits none of those elements which, in the burning of gas, are so injurious to health; and explosion would be impossible. The only danger would be at the battery; that, of course, should be attended by a competent person.

Internal lighting would be as practicable as external lighting. M. Achereau's experiment was performed with a voltaic battery of two hundred pairs, composed as follows: 1st. An outer globe of glass. 2d. In this globe of glass a cylinder of charcoal, open at both ends, and plunged in the nitric acid contained in the outer globe. 3d. In the cylinder of charcoal a porous porcelain vase, containing acidulated water, (with sulphuric acid,)—this replaces the cloth in the common battery. 4th. In the porcelain vase a cylinder of amalgam of zinc, plunged in the acidulated water. Two copper conductors from the second pole, and pointed with charcoal, led into an empty glass globe, from which the air had been exhausted. The two fluids, on meeting, produce a soft but most intense light. Should the thing work in general as on this occasion, it will work a dreadful revolution with gas companies. M. Achereau said that a company for supplying the electric light, would realize a handsome profit by charging one-sixth that is paid for gas. A Mr. Slaite is lecturing in England on this new mode of lighting. At a soiree given by the Literary and Philosophical Society of Sunderland, this mode of lighting was the principal attraction. The Newcastle Guardian says: "The light, which was of astonishing brilliance and beauty, was placed under an air

tight glass vase; when the gas was turned down it sufficiently lighted the spacious building, and bore the closest resemblance to the great orb of day of any light we ever witnessed. The electric light was next exhibited in a vessel of water, with equal success. Mr. S. stated that it was the cheapest as well as the best, for all practical purposes. The marvellous invention was hailed with rapturous plaudits!" The New York Tribune says, in reference to this mode of lighting: "Its expense is not one-twentieth of the price now paid in this city for gas;" and I suppose that we, out west here, pay one-half more for our gas than the people in New York, and double the price the people do in England. Hence, it becomes the lovers of economy to look well to this subject—*light!*

St. Louis, March 25, 1848. J. M. P.

ART. III.—ON THE GEOLOGY OF THE VALLEY OF THE MISSISSIPPI.

On referring to the table of equivalents* which we offered in the March number of the Western Journal, it will be perceived that the order of super-position of the different mineral masses which enter into the constitution of the earth, is invariably the same, whether found under different names in the west, in New York, or on the eastern continent. Exceptions, however, to this uniformity in sequence have, in a few instances, been observed, but these are local in character, and generally limited to the junction of two formations.

In the State of New York, the Silurian and Devonian, or the older fossiliferous rocks, are more completely developed than in any other portion of the globe yet examined. England and Wales, in which these systems were first discriminated and classed as separate from other formations, furnish but few of the strata which are so abundantly displayed in the same series in New York, and in order to find a fair proportion of the latter, it even seems necessary to traverse the old continent in every direction, and to borrow equivalents from different, and often very distant, localities. The strata which are so multiplied and fully developed in the system of New York as to render it properly a standard of comparison for similar formations throughout the earth, are but imperfectly distributed in the great Valley of the Mississippi. Some of them, as we proceed towards the west, become more and more attenuated, and ultimately thin out, so that the stratum which rests upon them, and that on which they repose, are brought in juxtaposition; and on proceeding still further, one or both of these give out, and others, older and newer in the series, are found in immediate contact, so that only a few of the numerous strata of the New York system are prolonged and fully developed in the west. This extension of a few, only, of these formations—the superposition of the carboniferous system, and the absence of all the younger rocks

*Drawn from Mr. Verneuil's Parallelism of the Paleozoic Formations of Europe and America, and the reports of Dr. D. D. Owen. There are a few errors in the arrangement of this table, which the reader can correct by the text which follows.

intervening between the latter and the cretaceous or chalk group, impresses on western geology a simplicity which has never been observed in any other country of the same geographical extent.

As it will become necessary, in presenting a view of the geology of Missouri, to refer to formations existing in other States, we will here offer a sketch of the geology of the Mississippi Valley, in order that its relations may be more fully comprehended.

The Valley of the Mississippi embraces the immense region bounded on the east by the most elevated range of the Appalachian chain, on the west by the Oregon or Rocky Mountains, on the south by the Gulf of Mexico, and on the north by the elevated table lands which divide its waters from those flowing into Hudson's Bay, supporting the great chain of lakes emptying into the Gulf of St. Lawrence. This vast basin includes, in the greatest extension of its axis, about twenty-one degrees of latitude, and about thirty-two of longitude, or an area of 1,300,000 square miles. Formed on a scale at once grand and imposing; characterized by a beautiful and agreeable diversity in its surface; irrigated by a great central stream, deriving its branches from the remotest limits of its border; circumscribed in its northern and southern extension to the great temperate zone of earth; unparalleled in the fertility of its soil and the amazing variety of its products; and unrivalled in the extent of its yet undeveloped mineral resources, this valley offers, in an eminent degree, all those conditions which are most favorable to the physical, moral and intellectual nature of man, and to the great and leading developments which characterize every stage of his onward progress to the high destiny which awaits him.

In offering a geological sketch of this extended surface, it may be necessary to premise that observations are still required in some portions of the country, to render it complete in its details; yet, sufficient is known to furnish a correct general estimate of the character of its formations, and the extent of their distribution.

By commencing at its southern border, or at the Gulf of Mexico, and proceeding towards the north, we find that arrangement in its strata which enables us to begin with the younger, or more recent formations, and to descend regularly to those which are older in the series.

The sands, clays and pebbles which cover the general surface of every country, conceal, to a certain extent, the more compact formations. This *alluvium*, as it is termed, is supposed to have been deposited in lakes, bays and estuaries, by the transporting agency of running water, or in some cases by denudation, and a transfer of these materials by the ocean itself from changes in its geographical and dynamical relations. Constituting the general surface of every country, it forms the foundation of the soil, or that admixture of its earthy and saline matters with vegetable mould, which sustains the vegetable world.

Underlying this alluvium, we find a tertiary border, extending around the Gulf

of Mexico, occupying the lower third of Alabama, nearly all of Mississippi, Louisiana, and the southern part of Arkansas; towards the western plains its limit has not as yet been defined. This tertiary belt is only a portion of that belonging to the Atlantic sea-board, which extends with a variable width from New Jersey to the Gulf of Mexico. Sweeping around the southern termination of the Appalachian range in Alabama, it rapidly widens out as it is prolonged towards the west.

In Alabama there are two formations composing this group of rocks, which have a general inclination or dip towards the south, or from the termination of the Appalachian range to the Gulf of Mexico. The first or the upper is termed the Nummelite Limestone, (the Orbitolite of Mr. Lyell,) and is found cropping out in various places where the water courses have worn deep channels through the alluvium, particularly in the bluffs in the southern portion of the State. Below this imperfectly formed limestone, we find the second stratum, in a descending series, with the same dip towards the south. Its line of outcrop forms a narrow but interrupted band north of the Orbitolite Limestone in Alabama, and gradually widens out, forming a broad surface in middle and upper Mississippi, whence it extends to the southern part of Arkansas. This white and friable rock, commonly termed the rotten Limestone, from its disposition to undergo disentegration on exposure to the air, gives rise to the prairies which so frequently diversify this region. It abounds in a great variety of shells as well as the remains of the remarkable cetacen—the Zeuglodon of Professor Owen, or the Basilo Saurus of Dr. Morton.

In the great geological scale, the next class of rocks below the tertiary series, is the chalk, or cretaceous group. In the United States we find no formation corresponding in lithological characters at least, to the upper division of this group as it exists in England. No chalk, as yet, has been found, though the equivalents of the green sands and marls which underlay it, have been observed at various places through Alabama, Mississippi, in the extreme western portions of Tennessee and Kentucky, and on the banks of the Mississippi river, as far north as the mouth of the Ohio. These marly and argillaceous beds crop out in a narrow line through Alabama; but in Tennessee become much wider, forming the cold and barren soils of several counties west of the Tennessee river. From their border of elevation they dip towards the south and disappear under the tertiary group already referred to. At Wetumpka, in Alabama, they repose upon the Metamorphic or Crystaline rocks; further to the west, near Tuscaloosa, and thence onward through the State, they rest immediately on the micaceous sandstone or other members of the Carboniferous series.† Extended through the southern and western portions of Arkansas, these cretaceous rocks, as they circle around towards the northwest, acquire an astonishing development in superficial area. In Lieutenant Fremont's expedition, the fossils found from longitude

†Lyell.

96½ (or a little west of the Missouri river,) to Pike's Peak, through the enormous extent of nine degress of longitude, all belonged to the cretaceous group of rocks. But the extension of its beds towards the west is equalled if not exceeded by that which occurs more towards the northwest. From the mouth of the Sioux to the mouth of the Chienne, a distance, by water, of four hundred miles, Mr. Nicolet found the cretaceous group forming the hills which flank the right bank of the Missouri river, and which rise like steps towards the Rocky Mountains. He estimates the greatest width of the group here, at about two hundred and fifty miles, and thought it possible that it was prolonged in length to the mouth of the Yellowstone, a distance of one thousand miles northwest. Now, as the geographical features of the great western plains present a remarkable uniformity in their general character, it would not, perhaps, be generalizing too far to refer them, in their entire extent, to the cretaceous formation.

It will appear from this summary, that the cretaceous and the super-imposed tertiary group, or those more recently raised from the bottom of the ocean, taken together, constitute a great western and southern border on the surface of the Valley of the Mississippi. If the geological formations of this great basin corresponded to those of England, we should find the cretaceous reposing on the Wealden, the next group, in a descending series. But the Wealden, the Oolite, the Lias, the Triassic and the Permian groups, are all wanting in its geological structure, and we find in Alabama the cretaceous resting upon the carboniferous, or the coal bearing series, or in the absence of these, and other older formations, directly upon the metamorphic or crystaline rocks.

With some exceptions, from the border of this cretaceous formation in Aalbama, Mississippi and Arkansas, to the great lakes and the table lands between the head waters of the Mississippi and Missouri rivers, and from its eastern border on the great western plains to the middle range of the Allegheny Mountains, the surface of the Mississippi Valley may be considered as belonging to the carboniferous group of formations.

These exceptions include, 1st. A limited and isolated circle around the city of Nashville, where the Devonian and Silurian, seem to have penetrated through the carboniferous rocks, which, in general overlay them.

2. An anticlinal axis, unaccompanied by dislocation, extending towards the north, along the eastern border of Indiana, displays the older fossiliferous rocks on the surface of both of its sides. These, in nearly horizontal strata, form successive bands of varying width around it, covering the surface of most of eastern Indiana and western Ohio, and extending from the country immediately around Louisville, in Kentucky, nearly to the southern border of the State of Michigan. These Devonian and upper Silurian rocks are here extended to the northwest, around the border of the great Illinois coal-field, and probably occupy all the surface between this limit and the southwestern shores of Lake Michigan. As we proceed towards the northwest, we find the upper part of

Illinois, from Rock River, nearly the whole of Wisconsin, all of the northeastern portion of Iowa, together with a part of the territory of Minesota, extending even beyond the Falls of St. Anthony, composed of Devonian, or upper and lower Silurian rocks. All the region of country on the northeast, the north and the west of the limits of this series of formations here, is characterized by the prevalence of Plutonic, Metamorphic and Volcanic rocks, covered over to a great extent by drift, or boulder alluvion, which seems to have been swept from the northeast.

3. The third exception is found in most of the southern portion of the State of Missouri and western Arkansas. Here the Plutonic and Volcanic rocks, forming much of the surface, seem again to have elevated some members of the lower Silurian group above the horizontal plane of the carboniferous series.

4. The fourth and last exception is so trivial as scarcely to require notice—it is a small extent of country east of the Appalachian coal measure, in Tennessee, which is formed of Silurian, but more frequently of Metamorphic and Plutonic rocks. On comparing the surface occupied by these older formations, it will be seen that the carboniferous series of rocks overspreads about two-thirds of the great Valley of the Mississippi, exclusive of the more southern and western portions, characterized as we have shown by the cretaceous and tertiary groups.

In order that we may give a more definite idea of the limits of the separate formations which constitute the carboniferous system, we will describe them as they are found existing in and around the coal measure of Alabama, where they preserve perhaps greater uniformity in their order of arrangement, than in any part of the Valley of the Mississippi.

The first or upper division here consists of white layers of sandstone and grit, alternated with green and gray micaceous sandstone, ripple marked yellow sandstones—clays and shales, alternated, and enclosing beds of coal, varying in thickness from a few inches to several feet. These layers with the included coal, constitute what is properly termed a coal measure or a coal field.

The second division of the carboniferous series in general, underlaying the first, consists here of a coarse quartzose grit, resting generally on thin laminæ of sandstone or dark colored shales. This formation is the equivalent of the Millstone grit of England. This we shall term Quartzose grit.

The third or lower division is formed of thick beds of bluish limestone, with veins of calc spar intersecting them, and sometimes abounding in nodules of chert and hornstone. The lower beds of this division are very fossiliferous and yield an abundance of producta and encrinites, and the very characteristic fossil, the Archimides of Le Seur.‡ Its upper strata includes the pentremital limestone of Dr. Owen. It is the mountain limestone in the geology of England, which we shall term the carboniferous.

The Appalachian and Illinois coal-fields, which form such prominent and important leatures in the geology of the Valley of the Mississippi, display a most

‡Lyell.

extraordinary extension of the strata which belong to the first division of the carboniferous series.

The great Appalachian coal measure, exclusive of the anthracite, which belongs to the eastern slope of the Alleghanies, extends from near the southern boundary of the State of New York, to Tuscaloosa, in Alabama, a distance from north-east to south-west of 720 miles—its greatest width being about 180. We may form some estimate of its limits by adding together the sum of the surfaces occupied by it in the different States in which it is found. It may be said to occupy the western half of Pennsylvania, the western third of Virginia, the eastern fourth of Ohio, the eastern fifth of Kentucky, one sixth of Tennessee, near its middle division, and one ninth of Alabama. These proportions, calculated on the respective areas of these States, will show that it covers a surface of at least 73,000 square miles.

Its general form or outline varies much between its two extremes. Towards the north-east it is broad, and gradually diminishes in width until it reaches the confines of Alabama, where it ramifies, following the divisions which takes in the Cumberland mountain as it enters this State. One branch sweeps along the Valley of the Tennessee river one hundred miles towards the west; two others, parallel, each about ninety miles long and twenty broad, pursue the general direction of these ranges towards the south-west, until they dip under the nearly horizontal strata of the cretaceous and tertiary group, near Tuscaloosa.

This coal measure is peculiarly characterized by the extent and thickness of the sandstones which belong to it. Those in Pennsylvania, Virginia Ohio, and a part of Kentucky, furnish to the enterprize and industry of these States abundant supplies of three great elements of their prosperity—salt, iron and coal.

The Illinois coal-field, though separated from the Appalachian, was, no doubt, originally connected with it, until denudation of some portions of the intervening surface exposed the strata which belong to the lower division of the carboniferous series and the older fossilifferous rocks of the Devonian and Silurian eras. This coal measure extends from near the middle of western Kentucky, in a N. N. W. direction, to the mouth of Rock River, in Illinois, and a short distance beyond it, west of the Mississippi, in Iowa. Its length is about 380 miles—its width about 200. From its nearly rhomboidal form, 170 miles may be assumed however as its average width; these numbers would give it a superficial area of 64,600 square miles—a surface exceeding that of any State in the Union, except Missouri, and almost equalling the whole area of New England. It extends over the surface of several counties in Kentucky on the Green river, over the southern third of the State of Indiana, the whole of Illinois, except that portion which lies north of a direct line from the mouth of the Kankakee to the mouth of Rock River, extending across the Mississippi at St. Louis, it is found occasionally flanking its right bank, to its termination in Iowa. If we consider the Osage coal measure as a mere prolongation of this great coal-field to the west, of

which there can be little doubt, the superficial area of the latter would be greatly increased; as we have evidence to show that it is an extensive formation, and will at some future day prove of immense importance to the interests of the State.

The extent and the limits of the coal bearing strata are more easily defined than those of the two lower divisions of the carboniferous group of formations. The millstone grit of England, perhaps, finds an equivalent in the conglomerate and millstone grits of Ohio, and the sandstone which spreads such general sterility over eastern Kentucky. It seems that on the western flank of the Alleghanies, the quartzose grit predominates, from the borders of the coal measure sandstone, to the middle of Ohio, where it falls immediately on the Waverly sandstone, which reposes in turn on the Devonian rocks, and to the middle of Kentucky, where the upper carboniferous limestone strata, are first observed. The carboniferous limestone increase in power towards the south and southwest, or through Middle Tennessee and North Alabama; while the quartzose either diminishes or thins out, so as to bring the sandstones of the coal measure often in direct contact with the carboniferous limestone.

The two lower divisions of the carboniferous group bordering the Illinois coal field on the east, are well defined. The quartzose sandstone, (here a millstone grit,) and the carboniferous limestone, often Oolitic, form successive borders; the first underlyaing the coal measure, and the latter reposing upon the Devonian black shale of Kentucky and Indiana. On the northern outline of the coal fields at Rock Island, these strata, as well as the upper members of the Devonian, have thinned out so that the coal measure here rests directly upon the cliff limestone, or the upper Silurian rock. On the southwestern border of this coal measure on the Cumberland and Tennessee rivers, the coal measure sandstone is prolonged into an extensive formation, and probably furnishes most of the iron ore which is so abundant in this region. Of the distribution of the two lower divisions of the carboniferous group west of the coal measure, little is known. The carboniferous layers crop out and become quite Oolitic in the vicinity of Ste. Genevieve. At Chester, in Illinois, I found them dipping towards the southeast and underlaying a sandstone which is probably the equivalent of the coal measure sandstone. The carboniferous limestone forms the foundation on which the city of St. Louis is built, and coarse grain sandstones, becoming more bulky towards the west, overlay it, which are probably members of the coal measure group of sandstones. These sandstones, with the underlaying carboniferous strata, extend from near Herculaneum to the western border of the State, forming a band south of the Missouri river of varying extent, which underlay the coal measure of the Osage. The carboniferous limestone and the coal measure sandstones are found on the banks of the Missouri, from the western limits of the State to the mouth of the Sioux, when they give place to the cretaceous group, which borders them on the west. The extent and nature of the strata which underlay the coal measure of Illinois on the west, from the mouth of the Missouri to its northern limit in

Iowa, is but imperfectly ascertained, from the thickness and uniformity of the alluvium which characterizes this region. But from the carboniferous rocks being found on the banks of the Mississippi to the mouth of Rock River, on the Des Moines to the mouth of Raccoon river, and on the Missouri to the mouth of the Sioux, it is probable that the whole of north Missouri and southwestern Iowa are characterized by the general prevalence of these formations near the surface.

In endeavoring to define the limits of the carboniferous formations in the Valley of the Mississippi, we referred to the distribution of the Devonian and Silurian groups, which are elevated from their general position beneath them to the surface, forming the prevailing rocks of certain districts. The members in these groups are of so much importance as to require a more extended notice. The blue limestone, the equivalent of the Trenton and Hudson river group of New York, and the lower Silurian of England, is found at Cincinnati, forming the middle or slightly elevated portion of the anticlinal axis, which extends towards the north in eastern Indiana. Forming the middle of this axis for some distance, it disappears below the strata super-imposed above it on both sides. On the eastern and western flanks of this axis, we find in succession, reposing on the blue limestone, in broad bands, or successive nearly horizontal borders of varying width, first, the cliff limestone, the equivalent of the Clinton and Niagara groups of New York, and the upper Silurian of England; then, above this, the corralline beds, the equivalents of the Onondaga limestone and the corniferous limestone of New York, (the Devonian of England;) then the shell limestone, the representative of the Hamilton and Tully limestones of New York, (the Devonian of England;) and lastly, the black bituminous shale, the equivalent of the Genessee slate of New York, (the Devonian of England.) This black bituminous shale, the youngest member of the Devonian group, disappears on both sides of this anticlinal axis under the strata of the Illinois coal field on the west, and under those Appalachian coal-fields on the east. The surface covered by them in their successive out crops, includes most of western Indiana and eastern Ohio. In the northern part of this district, they disappear under the drift alluvium which covers here the general surface of the country. As the out crops of these strata circle around the coal measure of Illinois towards the northwest, the cliff limestone widens out, while the others, for the most part, disappear or form very narrow bands between it and the coal strata. This increase in the cliff limestone gives it great extension on the northern border of the Illinois coal field, where it occupies the whole surface of Illinois north of the coal measure, all of Wisconsin to the Wisconsin river, and is prolonged over the surface of much of the northeastern part of Iowa.

In Wisconsin and Iowa it forms *the lead bearing rock* of the mineral district, and abounds in excellent beds of iron, as well as in copper and zinc. At Rock Island it is found dipping under the coal measure which here seems to be deficient

in the carboniferous limestone and the quartzose grit, or the two lower divisions of the carboniferous series. On the north, at the Wisconsin river, it is found reposing on the blue limestone which here has become quite thin, compared with its great thickness at Cincinnati.§

On the Wisconsin river, below the blue limestone, saccharoidal sandstones, alternated with other magnesian limestones, make their appearance and constitute perhaps, the oldest division of the Silurian group found west of the Alleghanies. Dr. Owen, with much plausibility, infers that these are the equivalents of the Magnesian limestones, which form the lead bearing rocks of Missouri—being the equivalents of the Potsdam sandstone, the Calciferous sandstone and the Black river limestone, of New York, and perhaps of the compact limestone at Frankfort, Kentucky, and the sandstones on the south of it towards the Alleghany mountains. These Magnesian limestone and Sandstone strata are raised upon an anticlinal axis at Lake Pepin; beyond which they again dip under the blue limestone which is seen reposing on the sandstone at the Falls of St. Anthony. Towards the north these older fossiliferous strata come in contact with the Plutonic and Volcanic rocks which abound in this region, and are covered over by alluvium or boulder drift, which extends from sources of the Mississippi and Lake Superior, towards the south-west.

At Nashville, Tennessee, the blue limestone makes its appearance again, through the Cliff limestone and the Bituminous Shale. These Silurian and Devonian rocks here form a small insulated surface, surrounded on every side by Carboniferous rocks, superimposed above them. Some of these formations crop out again in Perry county, in the same State. In a recent visit to the south, I found the encrinital limestone of the carboniferous series reposing on the black bituminous shale of the Devonian, at the upper ford of Shoal Creek, in Lauderdale county, in Alabama. This is, perhaps, the most southern outcrop of these older formations.

It remains, in order to fill up this condensed and imperfect sketch of the geology of the great Valley of the Mississippi, to refer to the character of the formations in the southern portion of Missouri, and nearly the entire State of Arkansas.

The surface of Missouri south of the carboniferous series which extend below the Missouri river for a short distance, is characterized by the prevalence of a magnesian limestone, sub-crystaline in its texture, and perhaps entirely destitute of fossils. Over this reposes, in some places, a semi-vitreous sandstone of compact texture, which, when broken in its connection, is found in angular fragments covering many of the hills. It is impossible, from the almost entire absence of fossils in these strata, to refer them to their equivalents in the great geological scale. Dr. Owens, as we have seen, suggests that they are the equivalents of the oldest strata of the Silurian group, which appear below the blue

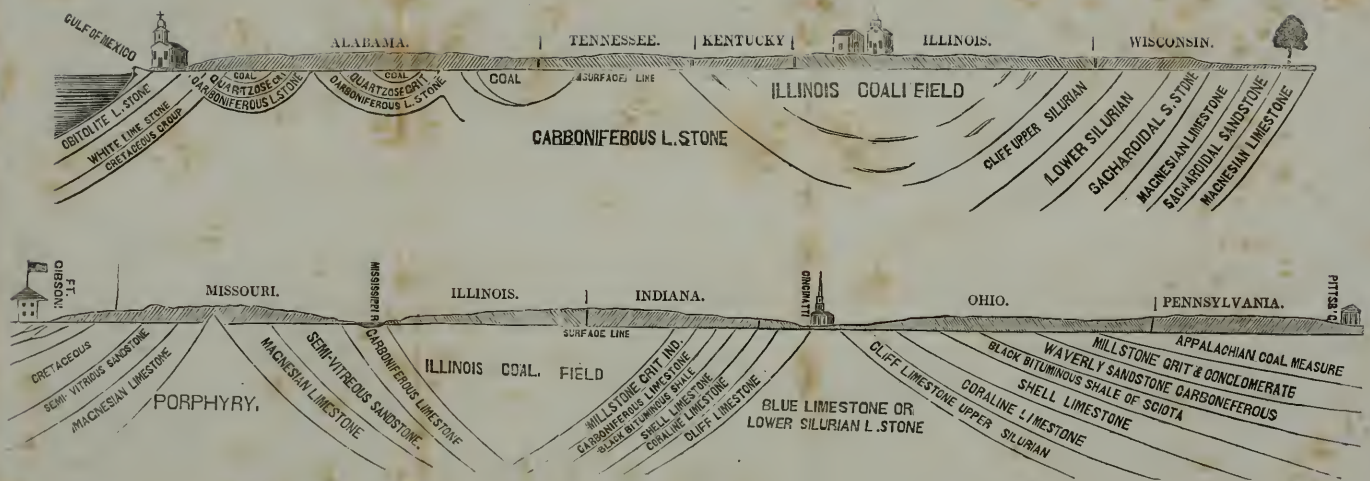
§Owen's Report.

limestone on the Wisconsin river. If their identity should be established, it will prove an important fact to the interests of the mining district of Iowa and Wisconsin, as it will hold out the prospect of finding the lead ore, and other minerals below the blue limestone, in which the veins become defective, or entirely give out. Penetrating through the magnesian limestone, and the sandstone which covers it, we find on the head waters of the White, the Big Black and the St. Francis rivers, Plutonic, Metamorphic and Volcanic rocks. The syenite covers entire districts, and the porphyry is found forming in one or two places a connected chain in the hills. The magnesian limestone is found at one or two points on the Currant river, surrounding the porphyry without seeming to have been disturbed by an elevating force. But at other points there are evidences of volcanic agency in the dislocation of the strata, and the occasional appearance of dykes. The Iron Mountain and the Pilot Knob seem to have been raised by igneous action, operating after the deposition of the limestone and sandstone formations, for near the line of junction, the strata of one has been converted into marble, and that of the other into compact quartz.

The geological character of the State of Arkansas is not fully known. Its eastern portion is covered over by alluvium, which, perhaps, reposed upon the green marls and sands which underlay the alluvial bottoms of the Mississippi river, to the mouth of the Ohio. Its western portion abounds in formations similar to those which characterize southern Missouri. Towards the Washita Hills the sandstone becomes more compact and ferruginous. The Plutonic and Volcanic rocks abound in its south-western division, and are flanked by strata of what Mr. Featherstonhaugh calls Grauwacke—an old deposit in which geologists have for the last half century concealed their ignorance. This ferruginous sandstone is classed by him as the old red sandstone, or the Devonion; but being below the Silurian rocks, it is probably an equivalent of the Potsdam sandstone. The mountainous parts of Arkansas, and the territory immediately west of it, are surrounded on the south and south-west by the cretaceous group.

In this sketch of the geology of the Mississippi Valley, we have been compelled to resort, in a few instances, to generalizations, without having space to assign the data on which they are based. The views which we have presented, we believe, will be found, however, in the main to be correct. In our next number we will endeavor to present a sketch of the economical geology of Missouri, or its mineral resources.

In the ideal sections represented in the wood cuts, we have attempted to show the relative position of the strata forming the great basin of the Mississippi. One is from Lake Pekin to the Appalachicola Bay; the other from the Appalachian coal measure, to Fort Gibson, on the Arkansas river. In these wood cuts no regard has been paid to the relative distances of different points, the object being merely to present the relative succession of the strata above the surface line.


GULF OF MEXICO
ALABAMA.
TENNESSEE.
KENTUCKY
ILLINOIS.
WISCONSIN.
COAL
QUARTZOSE GRIT
CARBONIFEROUS L.STONE
COAL
QUARTZOSE GRIT
CARBONIFEROUS L.STONE
COAL
SURFACE LINE
ILLINOIS COAL FIELD
CARBONIFEROUS L.STONE
OBITOLITE L.STONE
WHITE LIME STONE
CRETACEOUS GROUP
CLIFF UPPER SILURIAN
LOWER SILURIAN
SACHAROIDAL S.STONE
MAGNESIAN LIMESTONE
SACHAROIDAL SANDSTONE
MAGNESIAN LIMESTONE
FT. GIBSON
MISSOURI.
MISSISSIPPI R.
ILLINOIS.
INDIANA.
CINCINNATI
OHIO.
PENNSYLVANIA.
PITTSB.
SURFACE LINE
CRETACEOUS
SEMI-VITREOUS SANDSTONE
MAGNESIAN LIMESTONE
PORPHYRY.
MAGNESIAN LIMESTONE
SEMI-VITREOUS SANDSTONE.
CARBONIFEROUS LIMESTONE
ILLINOIS COAL. FIELD
MILLSTONE GRIT IND.
CARBONIFEROUS LIMESTONE
BLACK BITUMINOUS SHALE
SHELL LIMESTONE
CORALINE LIMESTONE
CLIFF LIMESTONE
BLUE LIMESTONE OR
LOWER SILURIAN L.STONE
CLIFF LIMESTONE UPPER SILURIAN
CORALINE LIMESTONE
SHELL LIMESTONE
BLACK BITUMINOUS SHALE OF SCIOTA
WAVERLY SANDSTONE CARBONEFEROUS
MILLSTONE GRIT & CONGLOMERATE
APPALACHIAN COAL MEASURE

ART. IV.—PUBLIC EDUCATION.

We publish below an extract from a letter, dated December the 8th, 1845, written by Evans Casselberry, Esq., of St. Louis, to the Hon A. O. Forshey, a member of the convention, which was at that time in session in Jefferson City, for the purpose of framing a new constitution for Missouri. It was originally intended as a mere private letter, but Mr. Forshey, deeming its contents of public importance, had it read to the convention from the clerk's table, and the convention approved of its sentiments, and ingrafted the principle laid down in the letter, into the sixth article of the new constitution, which it would seem was the most popular part of that instrument. We copy from the letter as published in the newspaper "Jefferson Inquirer" of Feb. 25, 1846.

"My object in this letter is to make a few suggestions, showing, in as few words as possible, the many *pecuniary* advantages that would accrue to the people from a general system of common school education, maintained at the expense of the public. The advantages to the people of such a system of education would, in my opinion, be incalculable.

"A system of universal and sound education would increase the wealth of our State by its effects on our legislature. Some laws give health and strength and growth to a community; while others disorder, enfeeble and dwarf it. If unwise, they bind it hand and foot, and cripple its energies; if wise, they give force and direction to its powers, and impel it on to prosperity. 'I cannot play,' was the noble answer of the Grecian statesman to one who handed him a musical instrument. 'I cannot play, but I can make a small State a great one.' He knew the powers of his intellect, and understood the efficacy of those laws and regulations which his genius enabled him to devise. Of the extent to which even one act of the legislature may increase the resources of a country and advance its prosperity, we have a recent and signal instance. By a single resolution, a few years since, the State of New York gave to her citizens the wealth of an empire. By her bold and far-sighted policy she created, in her bosom, treasures greater than are contained in the mines of Potosi in South America. Hundreds of years of ordinary progressive prosperity would not have advanced her to the situation she now holds, in consequence of a solitary enactment. In a few years she will possess within herself more wealth, population and power, than could have been found, fifty years ago, in all the States of this wide confederacy. A single unwise law, on the other hand, may, for a time bankrupt a State.

"Let us consider the effect of universal and sound education on legislation. In a free country good laws can only be the result of general intelligence among the people. For such are not the offspring of chance, but wisdom. Bacon, the greatest philosopher that ever lived, and one of the greatest statesmen, has told us that good laws are 'deep not vulgar, not made on the spur of a particular occasion, but out of providence for the future.' Laws of this kind can never be

enacted but by wise men. And to secure wise men as their representatives, the people must be intelligent.

"Further, if a whole community were well educated, there would be a probability of obtaining good legislators, much greater than now exists, as there would then be a much greater mass of intelligent men capable of discharging the duty of legislation. Out of thousands of educated men, it would be easy to select those who would be competent, from their talents and qualifications, to take large and remote views of all the interests of the State, and thus secure its prosperity.

"Laws, also, are the emanations of the intellect of a community in another sense, besides their being framed by those whom the community appoints; for few legislators will ever favor a law which they cannot justify in the eyes of their constituents. And if we had the wisest legislators that ever assembled, their wisdom would avail as little, if the people were ignorant and prejudiced. We would verify, in our case, the truth of the biting remark which Anacharsis made to the Athenian lawgiver, on that part of his code by which a small and choice body of counsellers was appointed to deliberate and prepare business on which the assembly of the people was to act. 'Solon,' said the caustic Scythian, 'You have wise men to deliberate, and fools to decide.' If a people are governed by superficial appearances and appeals to their prejudices and passions—if they have not intelligence sufficient to appreciate the solid reasons on which all salutary and far-reaching enactments are based—that people must be content with laws the reverse of those which Bacon applauds; their laws must be vulgar not deep, made on the spur of the occasion and not out of providence for the future.

"If, then, the history both of our own and former ages teaches us that nations are often ground to the earth by bad legislation, while they are even ignorant of the cause of their distress, and so can do nothing to remove it; and if we are taught that a wise and provident legislation often opens sources of wealth through which millions annually flow into community, I appeal to every reasonable man, whether that diffusion of intelligence which would secure our posterity from the curse of ignorant legislators, and ensure to them the services of enlightened men, would not be cheaply purchased with a sum ten thousand times greater than that which a general system of common school education would cost.

"Universal education would promote the wealth of a community by improving the capacity of all its members, and thus enabling each individual to apply his powers to the best advantage. The ox and the horse excel human beings in strength; why is it then, that the labor of a man is of more value than the labor of a beast? It is because he possesses intellect. The more, then, of this distinguishing and superior quality any one can be made to possess, the more valuable, in general, does his labor become. Probably no man will dispute the truth of the inspired proverb, 'wisdom is better than strength.' A fine illustration of the gain to national wealth as well as to national character, from the superior powers a good education imparts to laborers, is furnished in some of our eastern manu-

factures. There are a number of articles for the manufacture of which the British enjoy at least equal advantages with ourselves; yet such is the superiority of our workmanship, owing solely to the higher skill and ingenuity which intelligence imparts to the American workmen in these branches, that the foreigners are obliged to counterfeit the stamp of our manufactures to prevent their goods from being driven out of the market. This is a fact well known to our eastern merchants. Some time since an agent from Birmingham was sent to our country for the express purpose of inspecting a particular manufactory, to ascertain the cause of this superiority, that the improvements in machinery, to which it was ascribed, might be examined and introduced into the establishment in which he was employed in England. He entered the building during an intermission of labor, and found many of the hands engaged in reading. He expressed himself to his conductor as satisfied at once as to the cause of the superiority of the American manufacturers. 'It lies,' said he, 'in the superior intelligence of the workmen; each one of them is fit to be a superintendent.'

"I would appeal to every observing man, whether the advantages of a good education would not be worth to every man, and every woman in a pecuniary point of view in the course of a lifetime, more than many thousand times the benefit he or she would derive from the money it would cost, expended in any other way.

"I know, indeed, that, in monarchial and aristocratical States it has been a favorite opinion that education spoils common laborers—that it puts them above their work. But 'knowledge puffeth up' only where it is a distinction. In countries where common laborers are kept in gross and debasing ignorance, and are regarded and treated as little better than beasts, education will naturally unfit an individual for labor—he has had imparted to him too much dignity of character and self-respect to fit him for a state of servile degradation. But let education be made common, and the laboring class treated as intelligent beings, and no man will be above work. Manual labor is made honorable by the respectability of those who perform it; for the character of every occupation is given to it by the character of those who pursue it. It is an insult to the God of Nature, to suppose that one class of mankind must *necessarily* remain degraded in order that another may be made comfortable.

"Education would increase the riches of a community by facilitating the adoption of all improvements in the mechanical, manufacturing and agricultural arts. There are two strong barriers which obstruct the advancement of uneducated people—ignorance and prejudice. Men who never read, know of no other improvements and methods of work than those which they have seen. Thus we observe hundreds of labor-saving or economical inventions in use in our country, which in another, are totally unknown. And even in the same country, the improvements common in one section are unheard of in another. But if men read, this would not be the case. Every man might be thoroughly acquainted with his calling; he could not only know it as he was taught it, but as it is pur-

sued in other parts of the world; he could avail himself not only of his own and his immediate instructor's wisdom, but he could borrow the wisdom of all who have followed the same pursuit; he might receive valuable hints from men who had died before he was born; he might grow rich by availing himself of the discoveries of his antipodes. Publications on every branch of industry are procurable, cheap, and easily understood.

"But prejudice, as well as ignorance, treads in the paths of old, and it looks with scorn or suspicion on all improvements. And as it springs from erroneous views and contractions of mind, it can only be removed by that mental cultivation which will enlighten and expand the intellect.

"It might be invidious to produce domestic illustrations of these effects of ignorance and prejudice in retarding the accumulation of natural wealth; we will therefore draw them from our knowledge of other nations. The East Indians pack their cotton for exportation by machinery, and put into the same bulk three times as much as the Chinese, who pack by the hand. In consequence of their ignorance, the freight of the Chinese cotton costs them twelve times the price. The first saw mill ever erected in England was destroyed by the populace, who thought it would throw the sawyers out of employment. When Hargrave, less than a century ago, attempted to introduce the spinning-jenny, which he had invented, into the cotton manufacture, he was obliged to fly from Lancashire, at the risk of his life; such was the prejudice against the introduction of an improvement that has yielded millions upon millions to the wealth of mankind. Every year of commercial distress in England, witnesses an immense destruction of agricultural and manufacturing machinery. The ignorance and prejudiced laborers believe that the machinery, which is the real source of their wealth, is the cause of their distress. An engineer of deserved celebrity, not long since, stated that he had completed several machines of great utility, but dared not bring them forward on account of the popular feeling.

"We have no means of accurately estimating the pecuniary loss which such a feeling inflicts on society; but we can easily see that it is immense. The cost of a general system of common school education, would be as dust in the balance when weighed against the comfort and wealth produced by the improvements, which increased knowledge would introduce.

"The original inventions and discoveries, which would naturally result from the cultivation of all the minds in the community, would open new and copious sources of wealth. Men celebrated in the history of the arts have been frequently poor, but I remember only a solitary instance of one who was uneducated. Some have been found who have educated themselves, in spite of unfavorable circumstances; but cases of this kind must necessarily be rare. It requires the possession of knowledge and previous mental discipline to fit men for inventing and discovering. The number, therefore, of those felicitous combinations of thought, which originate useful improvements in the arts of life, in any country,

will generally be found proportional to the number of its educated inhabitants. If only the fifth part of any community are enlightened by early instruction, we can calculate on but the fifth part of the useful inventions and discoveries which might be gained by the education of the whole. And thus we see that the nations and States most distinguished for general intelligence, are also most conspicuous for the number and usefulness of their labor-saving machines, and for their continued succession of novel and successful experiments in the various branches of industry by which wealth may be accumulated. To verify the truth of these remarks, compare England with France, and our western States with other portions of the Union. But not one thirtieth of our fellow citizens receive as good an education as all might receive by means of a general system of education. And what a change would be wrought upon the condition of a community, were the practical inventions and discoveries of its members multiplied thirty-fold! With what an accumulating rapidity would its prosperity move onward! What multitudes would then benefit society by their ingenuity, who now curse it by their vices! How many Franklins, Fultons, Rittenhouses and Whitneys, would rise up and bless the world, if the beams of knowledge were poured upon every mind, to kindle the flame of slumbering genius! The sudden greatness of Missouri would resemble the poet's description of the fabled goddess, whose creeping form instantly expanded by its own motion, until as she walked upon the earth, her head was hidden in the clouds.

"The invention of a single intellect, which might have slept in ignorance, had it not been awakened and called into activity by this all-reaching influence, might produce an annual pecuniary revenue, which would far more than defray the expenses of the system to which its powers owed their development. It is to the increase of these very inventions and discoveries, that the moderns owe their superiority, in arts and riches, over the ancients; and by availing themselves of these, one nation now excels another. To illustrate this truth, let us compare the commercial and manufacturing power employed in England, with that of France. We learn from the statistics of Baron Dupin, that the force of men and horses engaged in manufacturing and commercial industry in France, is equal to the power of 6,303,019 men. While in England and Scotland the animate force thus engaged is only equal to the power of 6,014,893 men. Thus we see France would be a greater commercial and manufacturing nation than England, were the amount of labor in these two nations dependant on the respective quanities of animate power they had in service. But the knowledge and ingenuity of the English have brought into existence so many wonderful machines and contrivances for economizing and accumulating power, that their whole force of living beings and machinery engaged in commerce and manufacturing, is equivalent to the power of 24,854,893 men; all the machinery and natural agents the French have brought to their assistance, only raise their force to a power equivalent to that of 11,536,352 men. Thus the English have quadrupled their power by

machines, while the French have not quite doubled theirs. In other words, in England, owing to the superior discoveries and inventions of its inhabitants, every man occupied in commerce or manufactures, is, on a average, able to accomplish as much as 2½ Frenchmen.

"Is it now any wonder that these Islanders, with a narrow territory, smaller population, and less genial climate, so immensely outstrip their less intelligent and ingenious neighbors, in the accumulation of wealth? And can we conceive a stronger proof of the actual pecuniary gain which accrues to a nation from cultivating the intellect of her sons, than is furnished by such a fact.

"The profit arising to a community from a single invention of one of its intelligent members, often yields a far greater annual amount than could possibly be derived, from any other method of applying the money which a general system of education would cost. This can be proved by scores of facts. We will mention but one or two. The ingenuity of Hugh Middleton, some hundred years ago devised and executed a scheme for supplying London with pure water. It is estimated that the amount now used in the city would cost, if furnished by hauling, the sum of nine millions of pound sterling, per annum. By the work of Middleton, it costs but about three hundred and eighty thousand pounds sterling. Thus a single felicitous invention has annually saved to one city, upwards of eight millions and half pounds sterling, or nearly forty millions of dollars.

"I will only refer in further illustration of this principle, to the effect of the application of steam to the propulsion of boats, by Fulton—a discovery with the results of which you are familiar—a discovery which has already done more for every State in the Mississippi Valley, than all the power of industry working by the old methods, could have affected for it in a hundred years. It has filled our houses with the productions of every country and climate, and has raised the price of very acre of our land, and almost every article of our produce. If the education of all the children of this State (Missouri) for centuries, raised up only one such discoverer as Fulton, the principal inventor of the method of applying steam power to boats, or James Watt, the principal inventor of the steam engine, or Arkwright, the inventor of the spinning-jenny, or Whitney, the inventor of the cotton gin, without yielding another advantage, the State would be immensely a gainer by the outlay.

"No man but one who has examined the history of nations, and investigated the causes of their poverty and wealth, can estimate the value of knowledge to a country's prosperity. The God of Nature has filled the earth, the air and the water with treasures—with a bountiful hand he has scattered wealth through every land; and nothing but ignorance and its consequent laziness, stupidity and vice, prevent nations from abounding in everything that can make the condition of man comfortable and glorious. The victories of Agincourt, Blenheim, Trafalgar and Waterloo, have not yielded to England the amount of glory she has gained from the labors of her Bacon, her Newton, her Locke and her Milton;

and France will boast of her Paschal, her Des Cartes, her LaPlace, and her Corneille, when the bloody throng of her triumphant marshals shall be forgotten.

"I imagine that I have said enough to convince you, and all other candid and intelligent men, that the actual *pecuniary* advantages to the people of Missouri, arising from a general system of common school education, would be beyond computation."

ART. V.—STEAM NAVIGATION TO CHINA.

We are indebted to the "Southern Literary Messenger" for the following interesting article, from the pen of Lieut. Maury. The favorable situation and literary pursuits of the author, are calculated to give the highest degree of credit to his facts; while the bold and comprehensive range of his genius, imparts an unusual interest to all his public communications.

The facts contained in the following article, lead us to doubt the practicability of establishing a convenient and reliable commercial route to China, across any part of the Isthmus which divides the Gulf of Mexico and the Caribbean Sea from the Pacific Ocean.

The objections to this route are calculated to afford a strong argument in favor of a rail road across the continent; but as to the practicability of the latter project, we give no opinion. We are persuaded, however, that if such a road were in existence, it could not, in cheapness of transportation, compete with the present route to China; and that its advantages, in a commercial point of view, would be unequal to the vast expense attending its construction and repairs—although in a national point of view we esteem such a work as highly important and meritorious.

Without some extraordinary means of social intercourse between the people of the two sides of the Rocky Mountains—such as can only be afforded by a rail road—it is unreasonable to expect that they will long continue under the same government. Trading as they do to opposite parts of the globe, and cut off from personal intercourse by the vast desert which intervenes, the inhabitants of the west will cease to sympathize with their brethren of the east; and lacking this, the strongest of all social bonds, they will doubtless, in time, establish a government of their own; and it would be unnatural in the people of the east to resist such a policy.

By reference to an article on "The Natural Laws of Commerce," published in the last number of the Western Journal, the reader will perceive that we do not regard Asiatic commerce as possessing that high degree of importance which is generally attached to it by the people of this country.

We have frequently heard it said that the commerce of the east has enriched

every nation which has been so fortunate as to monopolize it. This commerce may have enriched cities and companies; but it is not of its nature to enrich a nation. It brings nothing that adds to the permanent wealth of a country, and but little which contributes to the substantial comforts of the people; while it has a constant tendency to drain the country of the precious metals. But were a single city in Europe or America to *monopolize* the Asiatic trade, it would be a certain source of wealth to such city, for the reason that the dealers in this commerce would have it in their power to sell at almost unlimited profits; but if those profits were paid by the people of that country in which the city was located, it is difficult to conceive how the country could grow rich by the operation.

Addressed to the Hon. T. Butler King.

NATIONAL OBSERVATORY, WASHINGTON, *January 10th*, 1848.

My Dear Sir:—Yours of the 21st December, 1847, in reply to mine of the day previous, has been received. As it is the text for what is to follow, I take the liberty of quoting it:

"I am greatly indebted for your note of yesterday, this moment received. It discloses the remarkable fact, that in establishing the line of steamers from Panama to Oregon, we have actually taken a step of three thousand miles on our way to China! That California must afford the point of departure for our line of steamers to Changhai, which must consequently become our commercial and naval depot on the Pacific! Why should it not also become the rendezvous for our whale ships, instead of the Sandwich Islands, and the terminus of the great railway to connect the Atlantic and the Pacific? This great circle route from the shores of the Pacific to those of China, may justly be regarded in the light of an important discovery made by you—no other persons ever having suggested it—I must, therefore, beg the favor of you to give me your views respecting it, and the suggestions above more in detail—and also of the Gulf Stream to which you allude. Most truly yours, (Signed,) T. BUTLER KING."

With regard to a current of warm water across the North Pacific to the Northwest Coast, from the shores of Asia, and corresponding to the Gulf Stream in the North Atlantic, I know but little more than what was stated by me in a paper on the Currents of the Ocean, read before the National Institute in 1844, and published in the Southern Literary Messenger, for July of that year.

I beg leave to refer you to that paper, with the remark that all that I have since learned, tends to confirm the views there taken with regard to such a current. Should it be found really to exist, it will exercise great influence upon the course of navigation, and consequently upon the commerce of that Ocean.

Thanks to the enlarged views of the statesman at the head of the Navy Department, I am enabled to carry out a favorite project, long entertained, of preparing from the log-books of our men-of-war and merchantmen, a chart which shall show the prevailing winds and currents in all parts of the Atlantic and Pacific Oceans.

The plan is to lay down on this chart the tracks of several thousand navigators, in such a manner as to show at a glance, the winds and currents encountered every day by each.

Lieutenant Whiting and other officers have been detailed for the purpose of assisting me in this undertaking. The sheets of the North Atlantic, prepared by that officer, and already published, have, by the importance of their results, attracted the attention of navigators, and given the undertaking renewed impulse.

With a liberality worthy the enterprise of American ship owners, and in a manner characteristic of the intelligence of American navigators, the most active co-operation has been promptly and freely granted; so that in the course of this year, I expect to have the voluntary, but effective co-operation of several hundred merchant vessels, making daily, in all parts of the sea, and on their passages to and fro, the requisite observations for this purpose.

When the facts and materials thus collected shall be brought together, spread out upon the chart and discussed, we shall then know certainly as to this Gulf Stream, and be enabled to form correct ideas as to the prevailing winds and currents in all parts of that broad ocean—a desideratum of great importance.

In the various projects which have, from time to time, been proposed for reaching China, partly by railroad or canal across the Isthmus of Darien, or other parts of the continent, it does not appear that the great circle route across the ocean, has ever been considered If we examine the course and distance from Panama to Changhai, as they appear on Mercator's chart—which is the projection used in navigation—we shall find the distance to be about 9,500 miles, and the course to be by way of the Sandwich Islands, which are midway this route. But on this chart, as on all others, the surface of the earth, which is a sphere, is represented as a plane, and is therefore distorted. The shortest distance, then, between any two places, unless they both be on the Equator, or on the same meridian, is not the straight line on the chart which joins them, but it is along the arc of the great circle in the plane of which they are situated;—and this arc, when projected on the chart, will appear as a curved line.

Now, if we take a common terrestial globe, and draw a string tightly across it from Panama to Changhai, it will show the shortest distance between the two places, and will represent the great circle route between them. And this string, so far from touching the Sandwich Islands, will pass up through the Gulf of Mexico, thence through Louisiana towards Oregon, crossing the ocean several thousand miles to the north of them. The distance from Panama to Changhai, by this route, were it practicable to travel it, is 8,200 miles, or about 1,200 miles less than it is by the way of the Sandwich Islands.

Now, to those who are accustomed to form ideas of bearings and distance from maps and charts, and not from *globes*, this statement may appear startling: yet it is nevertheless true, that a person standing at New Orleans, is about 3,000 miles nearer to China, than he is when he starts from Panama by the way of the

Sandwich Islands—notwithstanding he will have traveled at least 1,500 miles to reach Panama. But the great circle from Panama through the Gulf and Louisiana, to China, as a *traveling* route, is impracticable, and the next step, therefore, is to find a route which is practicable, and which shall deviate from this as little as headlands or other obstacles to navigation will admit. When we have found such a route, we can examine the advantages which it offers—compare them with other routes that have been proposed, and then form conclusions.

By still holding one end of the string at Changhai, on the globe, and carrying the end that is on this side, out into the Pacific, until the string will just clear the Peninsula of California, we shall have an arc of a great circle along which a steamer, with fuel sufficient, might sail all the way from Chili to the islands of Japan without ever having to turn aside for the land.

This, therefore, is the shortest route, and the nearest *navigable* distance to China for all vessels, whether from Chili, Bolivia, Peru, Equador, Central America, or the Pacific ports of Mexico. In point of distance, *it is the great highway from America to the Indies*, and will, hereafter, be called the great *commercial* circle of the Pacific Ocean.

After running along this route and passing Cape St. Lucas and Bartholomew, if we look to the right we shall find, at the distance of a few leagues, the beautiful ports of Upper California, including the safe and commodious harbors of San Diego, Monterey and San Francisco. These ports are right on the wayside of this great circle and commercial highway. They occupy that geographical position, and present, in the future, those commercial advantages which will assuredly make the most favored of them the great half-way house between China and all parts of Pacific America.

The harbor of Monterey is said to resemble the beautiful Bay of Naples. It has water and capacity for the combined navies and ships of the world. The winds here never blow *home*, and the anchorage, therefore, is perfectly safe.

Merely as sheets of water, however, both San Diego and Francisco, are, in the eyes of the sailor, still more beautiful; but San Diego is on the verge of a sterile country, while San Francisco is further out of the way of the great circle route than either of the other two.

My enterprising friend Wheelwright, has a monthly line of steamers from Valparaiso, touching at the "Intermedias," Callao, and Guayaquil, to Panama. Under your bill of the last session, and by the energy of the Navy Department in giving it effect, Aspinwall & Co., of New York, have the contract for another monthly line of steamers from Panama to the mouth of the Columbia river. This line, no doubt, will connect at Panama with Wheelright's, and with one or more lines on this side to Chagres. The steamers of Aspinwall's line are to touch at Monterey; and Monterey is, therefore, the port for the terminus of the China line.

It is in latitude 36 deg., 38 min., and is one-third of the distance, and directly

on the wayside from Panama to China; and from Monterey by the great circle to Japan is not nearly so far as it is from Panama, by the compass, to the Sandwich Islands—the latter is 4,500 miles, the former 3,700, or just the distance from Charleston to Liverpool.

There is no stopping place—no land—between Panama and the Sandwich Islands; and in the present stage of steam navigation, no steamer can carry fuel for 4,500 miles at a stretch, and pay owners.

Midway between Monterey and Changhai, and immediately on the wayside, are the Fox or Elcoutian Islands, where the Monterey line can have its depot of coal. It is just about the distance both from Monterey and Changhai to those Islands, that it is from Liverpool to Halifax, where the Cunard line has its depot. Though the lines from New York to Liverpool, Havre and Bremen, have proved that 3,000 miles are not beyond the fuel limits of steamers.

By examining the chart or a globe you will see that this route from Monterey lies wholly without the limits of the north-east trade-winds; and therefore so much the better for steamers. Though little or nothing is known of this part of the ocean, except to the enterprising whale-men of New England, yet reasoning from what we know as to the prevailing winds between the same parallels in the North Atlantic, I suppose that this route, under certain circumstances, will also be found the best for sailing vessels. But the "wind and current chart" which is in the course of preparation, will determine this point.

Before the navigation of the North Atlantic was as well understood as it is at present, and, indeed, the practice is scarcely wholly abandoned at this day, it was customary for vessels trading between this country and Europe to run down to the south many hundred miles out of their way, in order to get the north-east trades. This was done with the expectation of more favorable winds and a quicker passage; but experience has proved the contrary, and there are but few navigators now, who, unless they are bound to the West Indies, pursue the "southern route" across the Atlantic. The old practice in the Atlantic, however, still obtains in the Pacific. The Sandwich Islands are within the trade-wind region, and all vessels bound westerly across the North Pacific, are in the habit of getting into the trades and making those Islands.

The New York packet ships in their trips to Liverpool average 130 miles a day. Where the trade-winds blow, a vessel will average about 150 miles a day. From Changhai to Monterey, by the great circle, a vessel would be for much of the way between the same parallels of latitude that she would be from New York to Liverpool. The prevailing winds are probably the same for each ocean; this, however, is conjecture, but like causes produce like effects the world over; and those physical conditions which make the west winds blow across the North Atlantic require them to blow, at least with equal prevalence, across the North Pacific. The latter is a more open sea and a wider ocean: there is less land in it to interfere with the prevalence of winds, to intercept them, to change their direc-

tion, or modify their force, and therefore we may suppose that the prevailing winds of the North Pacific are more uniform than they are in the Atlantic. But supposing them equal, one of the New York packets at her average outward bound rate of sailing, would make the passage by the Great Circle from Changhai to Monterey in forty-one days, which is about equal to the passage from Rio to the United States.

If we suppose the same ratio to hold in the Pacific, which obtains between the outward and the homeward passage across the Atlantic, then the average sailing distance the other way, that is from Monterey to Changhai, would be fifty-seven days by the Great Circle. The trades are favorable for the outward bound trips of sailing vessels from Monterey, and therefore the old sailor adage: "the longest way round is the shortest way home," will probably continue to hold good for that half of the voyage.

But you have asked me to consider the best route not for sailing vessels, but for a line of steamers.

The Great Circle is the route for steamers both ways—and supposing the vessels upon the proposed line to be equal in speed to the "Great Western" in her palmy days—and why should they not be superior?—they will make the passage to and fro between Changhai and Monterey in twenty-six days, including the stoppage of a day for coaling at the Fox Islands.

It has been shown that Monterey is directly on the great highway from western South America and Mexico to China. This fact is of itself sufficient to show why the preference should be given to it as the American terminus of the line.

Intimately connected with this subject, however, is a rail road from the Atlantic to the Pacific.

A rail road from Savannah and Charleston to Memphis, has already been projected and is partly completed. From Memphis to Monterey, the distance by an air line is 1,500 lines.

Supposing your proposed line of steamers established to China, and this rail road completed to Monterey, the productions and rich merchandize of China and Japan might be placed in the lap of the great Valley of the Mississippi within thirty days.

The intelligence brought by each arrival would be instantly caught up by telegraph, and as instantly delivered in New York and Boston. Here the steamers would receive it on board, and in thirteen days more arrive with it in England; thence it would be taken across the channel in a few hours, and immediately communicated through the magnetic wires to all parts of the continent. And thus, by this route, intelligence might be conveyed from China through the United States to the people of St. Petersburg and Moscow, and perhaps, at no distant day, to Constantinople also, within forty-five days.

I see no reason why the rate of travel over the railroads, hereafter to be built in America, should not at least be equal to that of the English and European

railroads. I believe the usual rate in England to be about forty miles the hour. Over some roads it is more. But supposing the rate over the great Atlantic and Pacific railroad to be only twenty miles the hour, the time from Monterey to Memphis would occupy three days.

This route has further the advantage of being at once the most central and direct route that has ever been proposed from the United States to China.

The distance from Memphis by Monterey and the Great Circle, is only seven per cent. greater than it is by a "bee line" drawn through the air from Memphis direct to Changhai.

If you look to the long and much talked of canal across the Isthmus of Darien to Panama, you will find that a person from Memphis to China by that route would, on making Cape St. Lucas, the southern point of the Peninsula of California, be no nearer to Changhai, in point of distance, than he was the day he embarked at Memphis, notwithstanding that to reach Cape St. Lucas he would have traveled upwards of 4,000 miles; and if he should go by the way of the Sandwich Islands, he would, to reach China, have to perform a journey of 5,000 miles greater than would be required of him on this new route by railroad and Great Circle *via*. Monterey.

In the progressive spirit of the age, time has become to be reckoned as money; and if there were a canal already cut from Chagres to Panama, the circuity of the route and the loss of time compared with what is to be gained by the proposed line from Memphis and Monterey, would, in time, cause the abandonment of that, and the completion of this, so far at least as raw silk and other small parcels of merchandize for England, travelers, and the people of the United States are concerned.

The route across the Isthmus of Tehuantepec, though not so far out of the way as that by Panama, is nevertheless quite a round-about way; the distance by it to China being over 2,000 miles greater than it is from Memphis *via*. Monterey.

In 1521, Cortes caused a survey to be made of the Isthmus of Tehuantepec, for the purpose of uniting the two oceans. Afterwards, it became the favorite route by which the Manilla merchants and others crossed over from Acapulco to the Gulf of Mexico.

Towards the latter part of the last century, an accidental circumstance gave it fresh importance. The Vice-Roy Bocareli, observing some brass pieces in or near the famous Castle of San Juan de Ulloa, with the stamp of Manilla foundry upon them, wished to know how they were brought to the Gulf. It was ascertained from the archives of the imperial city of Tehuantepec, that those heavy pieces had been transported from the Pacific to the Gulf, partly by land and partly by water across the Isthmus. The route from the Pacific being up the Chicapa across the rual-paso, thence by land over the grand Cordilleras to the head waters of the Coatzacoalcas, which empties into the Gulf. At what sacrifice of money,

time and men those pieces were transported, it is not stated—but it should be recollected that the feat was performed when the Spanish galleons from Acapulco were ballasted with silver, and laden with gold.

In 1814, the Spanish Cortes actually ordered the canal to be made: but this order produced no other result than a reconnoisance by Gen. Obregoso, which I have before me in the very excellent work of De Mofras, entitled "Exploration de Territorie de L' Oregon, Paris, 1844." Although the General's geodetic report was never completed, it gives, in the language of that intelligent writer, "very correct ideas of the nature of the ground and of the difficulties it presents."

I have also before me a MS. copy of the survey made three or four years ago by Cayctano Moro, in connexion with the grant by Santa Anna to Don Jose Garay, for connecting the two oceans by canal through this Isthmus. This MS. was obtained by Commander McKenzie, U. S. N., at Mina-tit-lan, from one of the assistants of the survey. It was copied by Lieutenant May, U. S. N., by order of Commodore Perry, and sent here, and is now in the hands of the engraver for publication.

With these, and other sources of information to guide me, I have attentively considered the practicability of a ship canal through the mountains of Tehauntepec.

From sea to sea, the distance across, in a north and south direction, between the parallels of 16 degrees and 18 degrees, is rather less than 120 miles. By Moro's MS., you can carry nine feet water one hundred and fifty miles up the Coatzacoalcas, though other authorities put the head of schooner navigation at the Island of Tacanachipa, which is only twenty-five miles from the Gulf.

But taking the most favorable view, which gives nine feet for fifty miles, and commencing the canal at the point proposed, which is about fifteen miles further up, at the confluence of the Maletengo, there remains a circuitous distance of seventy odd miles in which there is an ascent and descent of at least seven hundred feet to be overcome.

In this distance, the Sierra Madre is to be crossed; and I have never heard that there is to be found the famous Irish mountain, "with a bog on the top of it," affording water enough to feed a *ship* canal! The Mexican engineers, however, propose to bring it by two lateral cuts twenty or thirty miles from a mountain streamlet.

The canal to be a *bona fide* ship canal, should be at least seventeen feet deep, by eighty feet broad at the surface. It must be a copious stream, indeed, to supply water enough to lift up through 700 feet and safely to let down from this elevation again, the fleets of ships which we are told are daily to pass through such a canal.

Suppose the feeder to be ample, let any one who would form an idea as to the cost of a ship canal in the pestilential climate and inhospitable country of this Isthmus, recollect the expense of the Louisville canal, constructed with every thing at hand, in a healthy and settled country, around the falls of the Ohio—and

it is but as a rod in length, and only as a race for shallops in comparison with this. Let him recollect the difficulties, nay, practically, the impossibility of deepening the western rivers. We have not been able to increase the depth of the Mississippi itself, at low water, even so much as two feet, much less sixteen. What, think you, would have been the expense of digging out the Ohio river, from Wheeling to Pittsburgh, before that country was settled, so as to afford an uniform depth of seventeen feet at low water? Go into the calculation and examine the items: after that, you may be able to form something like an appropriate estimate as to the cost of a ship canal across this continent, in the most unhealthy region of the globe; a region in which native or acclimated laborers are not to be found, and where foreign laborers, knowing they should have to work knee-deep in mud and water, under a tropical sun, and in such a climate, could not be had for wages.

So impressed are the Mexicans themselves with the unhealthiness of the route, that Santa Anna, after granting to Garay this privilege, which he proclaimed to his countrymen, would make Mexico the focus of the world's commerce, the emporium of wealth and power, issued a decree directing judges to sentence malefactors to work on this canal, and then ordered a prison to be built on its banks to keep the laborers in.

But suppose the mines of Potosi to be exhausted and the canal to be made, I doubt much of its extensive use, for there are in the minds of sailors, great obstacles still in the way. It is well known that in that part of America, during the sickly season, even a few hours on shore are considered sometimes fatal, and always dangerous to unacclimated foreigners.

Two years ago, the United States Frigate, Savannah, cruizing in the Pacific, touched on the coast of Tehuantepec during the *healthy* season. Four of her crew deserted, and in two weeks three of the four were dead. She was followed by the Warren; seven of her crew deserted, one of whom in a very short time after, wasted and worn down with disease found his way back, and reported himself as the only surviving man of the party.

During any season, but especially the sickly season, which on this Isthmus is most of the year, a night in the "Black Hole of Calcutta" would be quite as inviting to travelers, as passage through this canal. I suppose that seamen would not ship to sail through it, at such seasons, on any terms. But if they would, there are other obstacles still in the back ground. Perhaps they are *the* obstacles; I allude now to the bars across the harbors, and to the dangers at either terminus of the canal. The bars are shifting bars, and therefore more difficult to remove.

The water and that at the mouth of the harbor, on the Gulf, is variously stated at from fourteen to twenty* feet, while the outlet at the other end, is obstructed by the bars both of Teresa and Francisco. As often as vessels, on

*The highest ever known.

approaching the mouth of the Coatzacoalcas from the Gulf should be caught in a norther,—and hurricanes prevail here for much of the year,—there would be danger, if not wreck. The ship would be embayed, close on a lee shore, from which there is no escape: there is no harbor nor shelter to the south of Vera Cruz, that a vessel at such times could make. During a norther the sea breaks "feather white" across this bar, and where the sea breaks in a gale, no ship can live. With such an exposure to the swell from the north, as this bar presents, to prevent the rollers from breaking over, it would require a depth twice, if not thrice as great as it now has.

There are the bars at the mouth of the Mississippi river, choking up the commerce of that great valley, checking if not damping, the prosperity of the whole country; and yet the labor and cost of deepening them even so much as *two* feet more, are such that the enterprise of the nation has not yet found itself equal to the task.

Look at the coast line about the mouth of the Coatzacoalcas. This port is in the middle of the crescent formed between the peninsula of Yucatan and the coast below Tampico—now you will observe, that if a vessel were caught in a *norther* off the bar of the Coatzacoalcas, she could not make any course that would take her clear of the shore. She is now in a *cul de sac;* and there is no escape for her.

On the Pacific side it is worse. The bars there have not so much water in them, and the outer one is exposed to the full force of the waves that come across that broad ocean. Here, the sea is visited by the most violent storms, accompanied with thunder and lightning, that are described by sailors as truly awful. In short, such are the dangers and difficulties of navigation in that region, that there is an admiralty order, forbidding British ships of war to visit it between June and November.

There are also the Nicaragua and three or four other routes, that have occupied, more or less, the attention of nations and capitalists, from time to time; but the difficulties and objections with regard to them are quite as serious as those which I have been considering with regard to Tehuantepec and Panama.

But if the connection by any of the routes across Central America could be made at half the expense of Monterey, or of Wilkes' or Whitney's rail road, I should consider either of the last three of far greater importance in a national point of view to this country, and its people, than any route that can be projected to the south of us, free though it should be to them and to it.

To canals, railroads and all such improvements, there are attached two values; a *particular* and a *general* value, if I may so call them. By the particular value of a rail road or canal, I mean that value which attracts the capitalist, and which induces him to invest his money in it for the sake of dividends. It is simply that value which inures exclusively to the benefit of stockholders, and consists in the aggregate only of the nett proceeds of the work.

By the *general* value, I mean all the collateral advantages which such an improvement draws after it, and distributes through the country and to the people of the country through which it passes. These advantages are far greater than the other. They consist first, in the benefits of the original expenditure in making the new high-way, and the daily disbursements along it: afterwards, in using and keeping it in order, with a large train of numerous benefits to the working men who find profit or employment in consequence of its existence. These collateral advantages consist, too, in the increased value which the improvement, be it rail road or canal, gives to the land along it, and to the produce which is taken up on the way side and conveyed by it to market. Take an example: in consequence of the internal improvements which benefit New York, it is estimated that each house keeper in that city pays on the average $50 less a year for such little items even as eggs, milk and butter, than he did pay before these improvements were made, and than he would now pay were they destroyed. Each house keeper, therefore, in that city, who uses milk, butter and eggs, may be considered to have, on account of those items alone, a monied interest in these improvements sufficient to produce an annual dividend of $50, which is equal to six per cent. interest on a permanent investment of $833 33. The country dairymen, who supply these articles, are equally benefitted.

Were it possible to enumerate all the items under the head of general value of the canal and rail road in the State of New York, we should find millions of people who never invested a dollar in those improvements reaping large annual dividends from their general value. Destroy the great Erie Canal to-morrow and the worth of real estate and other property along it, which constitute but a part of its general value, would be depreciated by an amount exceeding many times the original cost of the work. Suppose, on the other hand, the whole region of rich country through which this canal passes were to be blighted in a day and made as barren as the deserts, and as pestilential as the coasts of Africa, leaving the canal only as a connecting link between the lake country and the sea. In this case what would be the general value of that canal in comparison to what it now is? It might still yield dividends and its particular value be good, but its general value would be merely nominal in comparison with what it now is.

A cut through the Isthmus would be the canal through the desert, and in comparison would bring to our country and her citizens but few general advantages.

But the rail road to Montery is the improvement through the rich country, and it would increase the value of lands, invite settlers, and benefit the public through innumerable sources under the head of general value, and strengthen the arms of the nation. A canal across the Isthmus would do no such thing.

There are annually employed in the Pacific three hundred American whaling vessels manned by twenty-five or thirty seamen each. These vessels have to break out their holds once or twice during the voyage to re-cooper, etc. For this and other purposes of necessity, they seek the ports of South America, of the

Sandwich and other islands in the Pacific. They are a hardy set of men who follow the whale in all parts of the ocean. It is a rule with them to visit port once or twice during the year to cooper, refresh and repair, for which several weeks are required; and I presume it is a moderate estimate to set down the average annual expenditure of each of these vessels whether in money or in kind on account of her crew and ship expenses of all kinds at $5,000—or one million and a half for the whole fleet.

The Sandwich Islands on account of the facilities they afford in the way of outfits, stores and repairs, are at present the principlal rendezvous for the vessels of this fleet. But were this rail road to Monterey completed, they would, as soon as that port should be able to furnish them with the necessary facilities, all resort there—and for the following reasons:

1st. They would be in immediate, direct and certain communication with owners and friends in Nantucket and elsewhere. 2nd. They would be relieved from the vexations, seizures, forfeitures, duties and port charges to which they are at present liable and often subjected. 3rd. They would be in their own free country under the protection of its righteous laws and glorious flag—and to their country they would assuredly come to expend for pleasure, outfits and refreshments, that million and a half of money which they now scatter yearly over the broad Pacific. Monterey is within their cruizing grounds, and is even now often visited by them. From this source arises one of those items under the head of general value connected with this rail road, which dollars and cents cannot wholly express—suppose the rail road to Monterey would induce the whalers to expend annually a million and a half of dollars in our own country and among our own people, which is now expended in foreign ports—$1,500,000 is six per cent interest upon a principal of 25,000,000, and if the improvment should realize this result, besides penetrating the rich country between Memphis and Monterey, and tapping many a source of wealth and prosperity that now lies hid on the way, it would prove equal to a funded investment of 25,000,000 by the nation in six per cent stock, the dividend from which would annually be expended among our own people instead of being taken from the circulation of the country, carried off and expended among the Islands of the Pacific as it now is.

Suppose the Mexican Canal should draw the whalers to Santa Teresa or Tehuantepec, the million and a half would go to the Mexicans and not "a los Yankees;" we should lose it.

The Sandwich Islands owe their commercial importance chiefly to the whalers and to circumstance connected with the fact of their being considered the half-way house between America and China. The star of their commercial prosperity has not yet reached its meridian height. Establish this line of steamers, and the day the decree is made for this rail road, that star will culminate.

This rail road would take the inland trade to Santa Fe and Mexico and increase it many fold. It is probable that several millions of Mexican people would use

this road as their commercial thoroughfare. For the extent of country to be supplied resolves itself into a question of dollars and cents. All those people who could get articles for less cost over it, than they would pay to receive the same over the rough roads from Vera Cruz and Tampico, would certainly use it.

There are other items of vast importance under the head of general value, some of which it may be proper to enumerate.

Memphis is the point of departure for this route; a city in the heart of the country and occupying a central position: it is situated right on the wayside of the great national highway and commercial thoroughfares between the north and the south, the east and the west. The Charleston rail road will connect with the Atlantic. The Mississippi river already connects it with the Gulf, and the lakes and thousands of square leagues of a rich and thriving country, through a ramified system of navigable tributaries, which if drawn out into one continuous stream, would more than encircle the entire globe. Growing out of these circumstances, the statesman will discover a general value containing items sufficient in consequence and importance to tempt nations into prodigality; for among these items, they would recognize the sovereign right to tax forever millions of property and people whose ability to pay is derived from the facilities afforded them to buy, sell and get gain.

Both Whitney's and Wilkes' roads to the Pacific have each its advantages, friends and advocates, and deservedly so. The country is wide and I do not start this in opposition to either of the two. Without the requisite topographical and geodetic information as to either of the routes that have been proposed from the valley of the west to the Pacific, I have been considering the most direct routes *geographically*, by which some central point of the country may be connected with China by rail road and steamers.

I did not select Whitney's as a link in this chain, because it is out of the way of the Great Circle route from Western America to China; because it lies within a colder region and would be liable to obstructions in winter, and because the harbor, at the mouth of the Columbia river, is not comparable to those in California. Lt. Howison was wrecked at the mouth of that river, two years ago in U. S. schooner, Shark. She went to pieces at a place on the bar where but a few years before the Exploring Expedition found water enough to float a 74. He chartered a vessel to take himself and crew to the Sandwich Islands, and though drawing but eight feet water, was detained sixty-three days just inside of the bar, and within one hours sale of the open sea, waiting to get out. I learn from that officer—and upon professional subjects there is not to be found better authority—that the character of that harbor has entirely changed since Captain Wilkes surveyed it. I did not select the route proposed by Wilkes from the Missouri, because it, too, is out of the way of the Great Circle, and also liable to obstruction in winter.

Nor did I select, nor have I advocated the route from Memphis as the very

best that is; I wish you to understand that I do not pretend to know any thing as to the nature of the ground or the obstacles in the way, further than what may be gathered from a mere geographical knowledge. San Diego and San Francisco may either offer a better terminus for the rail road than Monterey. Lt. Minor, U. S. N., who has been the governor of San Diego, informs me that he found bituminous coal in the Solidad valley, about six miles from the port. He found it on the surface and used it in the forge, though it was impregnated with sulphur.

Geographically speaking, however, Memphis and Monterey are the points. But geodetically, practically and commercially it may be better to improve the navigation of the Rio Grande so as to ascend it by steam boats some four or five hundred miles to the Paso del Norte, or even further up; then cross over the Sierra to the head of the Gila, thence down that shallow stream with locks and dams to its junction with the Colorado—and thence to San Diego and the ocean. But seeing that practically with us it is not so easy to make navigable those rivers in the west which are not so, I do not expect ever to see this route successfully pursued or even seriously advocated. Crossing the Mississippi midway between the gulf and the lakes the proposed route from Memphis would be through a healthy, and for the most part a fertile country. It never would be blocked up with snow—of all the routes ever proposed from the United States to China, it is the most direct for ths people of the States, the West Indies, Brazil, Bolivia, and all the intermediate country. The length of the rail road may be shortened several hundred miles for the present, at least, by starting it from the sources, or head of navigation, the Arkansas. The effects of a substantial rail road from Memphis to one of the ports of California, in connection with a line of steamers thence to China, would do much to break up old thoroughfares and channels of commerce through the Pacific, and to turn them through the United States. A good rail road with a moderate rate of tolls, but sufficient, nevertheless, to keep the road in repair, could be felt at the Sandwich Islands as a serious injury to them and their commercial importance.

Let such a rail road be given to the country, and after it shall have been for a little while in successful operation, you will hear no more said by the people on the Atlantic side in favor of a canal or rail road, across the Isthmus of the continent, for their convenience in communicating with China and "*Old East.*" So far from the people of the Atlantic wanting a highway there to get to the Pacific on their way to China, the people of the Pacific, at least of all Pacific America south of Mexico, will want to cut through the Isthmus of Panama to get to us on their way to China and the east.

The time from Panama up the Pacific coast to Monterey allowing the same rate at 220 to the steamer, would be 15 days and 3,300 miles. This part of the voyage would be tame to a degree, having scarcely variety enough to make applicable the travelers witticism, "sometimes we ship a sea, sometimes we see

a ship." Say, then, which of the two lines would a passenger, on arriving from Valparaiso, at Panama, or at Cuba from Brazil, or at Jamaica from England, be most likely to take, the one on this tedious route along the Mexican coast, with its dull monotony, or the one through the Gulf of Mexico, up the Mississippi and thence across the country by rail road to California?

Considering the present commercial condition of the Japan and Chinese empires, regarding the destiny of the Pacific States of the Union as one of glorious promise, taking the changes which are annually occurring not only in the articles of trade, but in the channels of commerce, and recollecting that of the eight hundred millions of people who are said to inhabit the earth, six hundred millions of them are to be found in the islands and countries which are washed by the Pacific, it is difficult to overrate the value and importance to the Republic, of a safe and ready means of communication through California with those people.

These six hundred millions have always been behind the two hundred millions of the Atlantic, in the art of ship building and in commercial enterprise.

Their junks and proaks were made only for creeping along the coward shores, not for venturing across the broad ocean. They are content that those white winged vessels which come from beyond the "black waters" should fetch and carry for them.

The Islander will cease to go naked—the China-man will give up his chopsticks, and the Asiatic Russian his train oil, the moment they shall find that they can exchange the productions of their climate and labor for that which is more pleasing to the taste or fancy. Hitherto the way to reach these people has been around the stormy capes, and the expense of carrying to the laboring classes, whose name there is legion, suitable articles of food and raiment, has been greater than they can bear.

Do you suppose the laboring classes of China would live and die on the unchanged diet of rice, if they could obtain meat and bread? This country will soon be offering from its western shores, not only those articles, but many other items of commerce, which, by constant and familiar intercourse with our people, they will soon learn to want and taught to buy. I regard the proposed rail road and line of steamers, as but an entering wedge—which, that these new channels of commerce may be safely opened, should be driven with energy.

The rail road must be a work of time—the line of steamers may be quickly started. I would, therefore, beg leave to call your attention to the importance of putting into simultaneous operation with the steamers, a mail to run in connection with them from Monterey to the most convenient point in the States.

This mail would not probably be oftener than once a month. If it come to Memphis or Little Rock, the direct route would be near Santa Fe and through Taos—supposing a grand pass should be found through the mountains, this mail would want an escort, and should be carried on horseback. On account of the Indians, etc., which beset this route, it might be well to establish a line of small

block houses, for the protection and safety of the emigrants to California. These stations could also afford horses, riders and escorts for the mail.

In that country, a journey on horseback once a month, of fifty miles in twelve hours—four miles an hour—would not be considered impracticable either for man or beast; with relays to accompany the riders, six miles an hour, or seventy-two miles in twelve hours would not be impracticable. But suppose the rate to be only fifty miles in twelve hours, or one hundred in the twenty-four, it would then be practicable—continuing the mail day and night—to reach Independence, Missouri, or Fort Gibson, Arkansas, from Monterey, in ten or twelve days, and thus letters from China might be delivered in New York, within forty-five days after date. It now takes more than twice that time.

When this mail route shall be established, the merchant in Boston, forty five or fifty days after his ship shall have sailed for China may send *via.* Monterey, fresh instructions, and they will reach consignees as soon the ship will.

Whether San Diego, Monterey or San Francisco shall be selected, as the terminus of the rail road and the line to China, will, or ought to depend partly upon the comparative facilities by which these ports may be reached from Memphis, and partly upon the advantages which they offer for the principal dock-yard hereafter to be established on the Pacific. The necessary surveys and examinations are wanting to decide this point.

The bills and reports submitted by you to the House of Representatives, in 1841, and subsequently, have caused you to be considered in the Navy, as the leader in Congress, upon the subject of ocean steamers, as connected with the naval defences of the country. In the policy of encouraging merchants to build for our lines of mail steamers, vessels that are convertible, at the pleasure of the government, into efficient men-of-war, is contained a principle of naval expansion, and the sinews of that maritime strength which, when rightly understood by the people, and properly carried out by the government, will make us, in war, the strongest power on the ocean, that the world ever saw.

This system of man-of-war built mail steamers, constructed with the aid of a trifling bounty from the government, and commanded by educated officers of the Navy, but manned and sailed on private account, will be to the Navy in war, precisely what the militia, led by West Point graduates, have proved themselves to the Army. Closely and intimately connected, is this great national rail road with that beautiful system of public defence.

Respectfully, &c.,

M. F. MAURY, *Lt. United States Navy.*

N. B. I send you a chart, with the routes marked off. The distances mentioned are in *nautical* miles.

HON. T. BUTLER KING,

Chairman of the Committee on Naval Affairs, House of Representatives, Washington.

ART. VI.—HISTORY AND HABITS OF THE POTATOE.

Owing to the arrangement of the matter for the present number of the Journal, we have no room for a discussion upon the interesting subject contained in the following article. The history of plants, (especially those of greatest importance,) like that of nations, runs back into fable; and hence, it is not wonderful that authors disagree. We are in search of truth, and if we fall into error, we esteem him our *friend*, who sets us aright. Those who are curious to know something of the value of the potatoe in its normal or wild state, and its particular location, will find some interesting facts in "Smee on the Potatoe Plant," a work which we recommend to the perusal of our readers.

Messrs. Editors:—We cannot agree on the habits and economy of the potatoe. The nature of this all-important plant should be fully understood. Its being a native of a tropical country gave rise to a popular error as to its economy, which was believed to conform to hot and dry climates; whereas, experience has conclusively shown that the very reverse of climate is most adapted to its nature. This led you, and thousands of others, to suppose that nature, in this case, committed an error in placing the potatoe where it did not naturally belong—while it is an established fact, that almost the whole arctic flora grows within the tropical latitudes of America, on account of the great elevation of its mountainous regions, some of which are covered with everlasting snow and ice. Peru, the native country of the potatoe, includes every climate on the globe, from the hottest to the coldest. What, then, does it signify that the potatoe is a tropical plant? I have proven that its habits conform to its place of nativity, and that Canada and the northern parts of Europe have, during summer, a similar temperature, like the elevated mountain ranges of middle America, which should plainly account for the thriftiness of the plant therein. Preston, who comes endorsed by the high authority of Alexander von Humboldt, as "the historian who has not now his equal living, neither in England nor Germany," has not given fancy sketches when he lets the potatoe spring up spontaneously in those cool regions, *where, however, winter is unknown*—there being no changes within tropical latitudes, which, with us, form winter and summer—there being a sameness of temperature the year round, as every geographer should know. The temperature of these elevated ranges, between eight and ten thousand feet, vary from thirty-five to sixty-five degrees Fahrenheit, where one crop of potatoes may follow the other without intermission of frost or winter. Preston further says, that the Peruvian Indians cultivated the potatoe next to the corn region of their mountains, from time immemorial before the conquest; that, therefore, it was not worse than a worthless weed, first discovered by the Europeans, but that it was a very important esculent to said Indians, from whom, no doubt, the Europeans learned its culture and use.

I have said, that if nature had placed the potatoe in the northern parts of

America, it would not have perpetuated its kind. Suppose a Mr. Smith has raised seed proper of the plant the same season, from seed under a hot-bed culture, does that prove that nature would do the same if left to chance? That under a natural course of vegetation it would at least require three years to mature tubers from seed, before they would re-produce the same, is a positive fact, of which every practical cultivator must be convinced. The following may serve as a test question:

Suppose the entire potatoe crop of this season, in North America, north of the 36° of latitude, were left ungathered next fall, and the land on which it grew turned out, and left to chance; does any body suppose that five years hence a single plant could be found within this entire region? I venture to say, not one! They might partially escape one or two winters, but never five in succession!

Now, gentlemen, all that you say in favor of potatoe seed, I fully endorse; but if farmers expect to raise full sized tubers from seed, before the second and third year, they will be undeceived by experience—which I have had for twenty-five years with the same. For my part, I have never been able, under the best culture, to raise a full grown potatoe from seed, before the third year.

E. MALLINCKRODT.

SCRAPS FROM THE EDITOR'S TABLE.

The Vernal Season.—It is the vernal season—and now, in obedience to Nature's voice, the vegetable world is bursting into life and beauty, while the husbandman, with strength renewed by the invigorating frosts of winter, is called forth again to the labors of the field. Would that I could escape from the stony street, and dull unchanging walls that obstruct my view, and, amidst ever varying rural scenes, unite my lot with his. But I hear him say: "Alas! my lot is hard—this doom of labor deprives me of my rest, and obstructs all earthly joy." Deem not so. Suppress the fatal thought, and accept with grateful heart the blessings which attend thy high estate. Thou wast not doomed to toil alone, for Nature was ordained thy help-meet. She is thy servant, and obedient to thy will—awaits thy high behests, and even now, as a bride robed in rich attire—decked with flowers and exhaling odors sweet—she welcomes thee to thy vernal labors. The minstrels of the air, from every grove, with song of sweetest note, greet thy coming; the insect tribe, with wing of every hue, disport about thy path, and in fairy mazes dancing, proclaim the happy season—while brutes of grosser natures modulate their hoarse voices to tones of love and joy.

It is the season of beauty—and of love, the source of all life. For every organic animated form, from the humblest plant to the highest intelligence, is conceived in love and nurtured by affection.

At such a season—amidst such demonstrations of joy and of homage to man who was commissioned from on high to subdue the earth—shall *he* alone be mute, and, in sullen mood, murmur at his lot? It is impious to repress the swelling tide of joy which springs from scenes like these. Then open thy heart and let flow in every stream of joy, until filled with gladness, it shall overflow with love and gratitude to the Author of thy being.

THE PORK TRADE OF THE WEST.

We are indebted to the *St. Louis Republican* for the following statistics and facts, in relation to the pork trade of the west. It is much to be desired, that some system of collecting and publishing facts in relation to this important interest should be established, which would enable the farmers to regulate in some degree, the number of hogs raised and fattened for market. Such information would tend to prevent the great fluctuations which so frequently occur in the price, and be alike beneficial to both the grower and the dealer. We should be pleased to publish all such facts, in relation to this branch of industry, as our agricultural friends may esteem beneficial to their interest.

Owing to the want of system in noting and collecting statistics in the west, perfect accuracy cannot be expected; but we imagine that the following tables are sufficiently accurate for all practical purposes. The enterprising and industrious editors of the St. Louis Republican, are entitled to much commendation for the labor which they have bestowed upon this subject; and if the publishers of newspapers throughout the country would follow their example, they would add greatly to their usefulness.

Number of Hogs Slaughtered in the West in 1843-4, 1844-5, *and* 1845-6.

OHIO.

Places.	1843-4.	1844-5.	1845-6.	*Places.*	1843-4.	1844-5.	1845-6.
Cincinnati,	240,000	196,000	300,000	Waynesville,	6,000	6,000	9,000
Columbus,	14,000	8,000	19,000	Hamilton,	40,000	32,000	30,000
Rariesport,	1,700	1,500	4,600	Camden,	8,000	7,000	9,000
Lancaster,	2,500	1,100	1,300	Eaton,	3,800	7,000	1,400
Circleville,	4,300	12,000	19,000	Clarksville,	11,000	10,000	6,200
Chilicothe,	52,000	24,000	40,000	Centreville,	700	600	1,200
Bainbridge,	3,000	550	1,200	Dayton,	20,000	12,000	8,000
Baltimore,	1,300	800	1,900	Troy,	4,000	1,000	2,000
Waverly,	2,800	1,300	4,000	New Paris,	5,000	10,000	7,000
Portsmouth,	2,000	900	1,500	Middletown,	10,000	7,500	8,500
Ripley,	——	10,000	15,200	Winchester,	1,200	800	1,000
Xenia,	5,000	1,500	1,200	Bellbrook,	1,400	1,400	3,000
Franklin,	3,000	2,800	2,900	Lebanon,	4,000	4,000	4,300
Piqua,	5,000	1,500	2,000	Greenville,	2,500	1,000	600

INDIANA.

Places.	1843-4.	1844-5.	1845-6.	*Places.*	1843-4.	1844-5.	1845-6.
Richmond,	5,400	800	1,100	Lagree,	3,000	——	1,000
Madison,	65,000	45,000	63,000	Fort Wayne,	3,000	800	2,000
Lafayette,	25,000	15,000	15,000	Covington,	5,000	4,000	6,000
Lawrenceb'g,	13,000	9,000	10,000	Eugene,	6,000	5,000	6,000
Connorsville,	——	1,000	7,000	Attica,	2,700	1,700	3,500
Evansville,	5,000	4,000	7,000	Dupin,	7,000	2,000	6,000
Laurel,	8,000	7,000	8,000	Terre Haute,	27,000	18,000	20,000
Brookville,	8,500	6,000	6,000				

ILLINOIS.

Alton,	37,000	16,000	23,000	Pekin,	20,000	10,000	——
Beardstown,	15,000	14,000	12,000	Quincy,	17.000	8,000	9,937
Griggsville,	3,000	2,500	3,500	Springfield,	16,000	3,000	3,400
Meredosia,	6,000	3,500	3,600	Whitehall,	8,000	1,000	1,200
Naples,	4,000	764	2,753	Winchester,	1,200	6,000	——
Peoria,	15,000	5,000	——				

MISSOURI.

St Louis,	——	16,000	30,498	Missouri river,	——	——	22,000
Upper Miss. riv.,	——	——	41,000				

KENTUCKY.

Louisville,	68,000	42,000	101,000	Bowling Green,	7,000	7,000	10,000
Westport,	11,000	14,000	17,000	Clarksville, Ten.	2,000	5,000	5,000
Maysville,	14,000	7,000	7,500				

No tables have been obtained for the year 1846-7, but the number is set down at 800,000.

Number of Hogs Slaughtered in 1847-8.

OHIO RIVER.

Wheeling,	5,000	Wabash & White rivers,	200,000
Cincinnati,	475,000	Scioto Valley,	100,000
Madison,	75,000	Aurora,	10,000
Louisville,	100,000	Covington,	6,000
Maysville,	10,000		
Tennessee & Cumberland rivers,	100,000	Total number,	1,081,000

MISSISSIPPI RIVER.

St. Louis,	63,924	Quincy,	20,000
Alton,	35,000	Keokuk,	10,000
Hannibal,	20,000	Oquawka,	5,000
Rockport,	3,000	Bloomington,	10,000
Lagrange and Tully,	5,000	Fort Madison,	10,000
Churchville,	5,000	Burlington,	15,000
Louisiana,	5,000		
Warsaw,	10,000	Total number,	216,924

ILLINOIS RIVER.

Peru,	3,000	Point Isabel,	5,000
Lacon,	5,000	Beardstown,	25,000
Peoria,	25,000	Meredosia,	10,000
Pekin,	25,000	Naples,	6,000

ILLINOIS RIVER—*Continued.*

LaGrange,	3,000	Griggsville,	6,000
Canton,	10,000	Tremont,	1,500
Knoxville,	10,000		
Springfield,	2,000	Total number,	156,500

MISSOURI RIVER.

St. Joseph,	5,000	Boonville,	4,000
Weston,	10,000	Rocheport,	3,000
Lexington,	2,000	Liberty,	2,000
Camden,	5,000		
Brunswick,	5,000	Total number,	39,000
Glasgow,	3,000		

Total amount of above tables, - - 1,492,924

There are several small towns not embraced in the above table, which will probably swell the total to 1,500,000.

From the foregoing, we gather the following results for the last five years: Total number for 1843–4, 912,000; 1844–5, 642,314; 1845–6, 955,588; 1846–7, 800,000; 1847–8, 1,492,924.

The following statement has been furnished us of the operations of the several slaughterers in this city during the past season:

Number of Hogs packed in St. Louis for the season 1847–8.

Mr. S. Finley,	9,000	Finney,	1,000
H. Ames,	9,300	Waddingham,	2,000
McAlisters,	5,000	Schipman,	1,272
Risley,	7,000	Craft,	1,050
Conn,	5,500	Schœnthaler,	800
Steitz,	5,112	Shaffer,	3,000
Bates,	3,000		
McFaul,	3,500	Total number,	63,924
Sigerson,	7,390		

From the foregoing statements, it will be seen that there has been an increase in the number of hogs slaughtered, amounting to 50 per cent. on the products of any previous year. In this city the slaughtering business has risen from 33,000 in 1846–7, to 63,000—about double—in 1847–8.

The following table furnishes a list of the number of hogs put up each year in Cincinnati, since 1833, inclusive, and the prices at which the market opened. The season begins in November and ends in March. Each year refers to that in which business closed:

Year.	*No. Hogs.*	*Price.*	*Year.*	*No. Hogs.*	*Price.*
1833	85,000		1841	160,000	$3.50*a*3.75
1834	123,000		1842	220,000	2.00*a*2.50
1835	163,000		1843	250,000	1.62*a*2.00
1836	123,000	$6.00*a*6.25	1844	240,000	2.25*a*2.65
1837	103,000	6.00*a*7.00	1845	213,000	2.50*a*2.70
1838	182,000	3.50*a*4.00	1846	287,000	4.00*a*4.25
1839	199,000	5.50*a*6.00	1847	250,000	2.70*a*2.80
1840	95,000	3.00*a*3.50			

Hogs packed in Ohio.

In 1844, 560,000; 1845, 450,000; 1846, 425,000; 1847, 325,000; of which aggregate, Cincinnati packed alone, in 1844, 43 per cent.; in 1845, 47 per cent.; in 1846, 68 per cent.; in 1847, 70 per cent.

The entire packing of the west may be divided as follows:

	1844.	1845.	1846.		1844.	1845.	1846.
Missouri,	16,000	31,700	70,898	Indiana,	257,414	147,420	250,236
Tenness.	16,000	1,500	42,975	Ohio,*	560,748	445,538	420,833
Kentucky	91,000	83,300	12,500	Union Pt.	1,200	8,830	18,675
Illinois,	136,709	67,964	68,120				

*Five minor points in this State not ascertained, and not included in this list, are supplied by estimates in tables, showing the number of hogs put up in each year.

Price of Pickled Pork in New York, from 1823 *to* 1847, *inclusive.*

Year.	Mess.	Pickled.	Year.	Mess.	Pickled.	Year.	Mess.	Pickled.
1823	$13 31	$9 78	1832	13 77	11 22	1840	15 07	12 96
1824	13 78	10 32	1833	14 97	11 53	1841	11 36	9 48
1825	13 83	10 22	1834	14 20	10 21	1842	9 27	7 23
1826	11 55	7 84	1835	17 96	13 08	1843	10 32	8 59
1827	13 21	8 62	1836	23 13	17 65	1844	9 28	7 39
1828	13 71	10 06	1837	21 66	15 99	1845	12 13	9 51
1829	13 79	10 24	1838	21 97	16 59	1846	10 50	8 78
1830	13 64	9 37	1839	19 32	15 72	1847	15 00	12 58
1831	14 30	11 13						

But a small quantity of what is packed is actually exported to foreign countries, as is seen by the following table:

Year.	Barrels.	Year.	Barrels.	Year.	Barrels.
1831	51,263	1837	24,540	1842	180,039
1832	88,025	1838	31,336	1843	80,310
1833	105,840	1839	41,301	1844	162,689
1834	82,691	1840	66,281	1845	161,609
1835	61,827	1841	182,399	1846	190,422
1836	22,540				

More than three-fourths of the exports are to the British Colonies, South America, and the West India Islands.

COMMERCIAL STATISTICS.

COMMERCE OF THE UNITED KINGDOM WITH THE UNITED STATES.

The following statement of the trade and commerce of the United Kingdom with the United States, is derived from Parliamentary returns to the British House of Commons in 1847. The commercial and fiscal year of Great Britain ends on the 5th of January.

EXPORTS TO THE UNITED STATES OF AMERICA.—An account of the declared value of the various articles of British produce and manufactures, exported to the United States of America for each of the past seven years, ending the 5th day of January, 1847.

Years.	Apparel Slops and Haberdashery.	Brass and Copper manufactures.	Cotton manufactures, includ'g Cotton Yarn.	Earthenware of all sorts.	H'rdw're & Cutlery.	Iron & Steel wro't and unwro't.
1840	£109,341	£107,473	£1,123,439	£179,933	£334,065	£355,534
1841	137,088	104,153	1,515,933	225,479	584,400	626,532
1842	84,893	89,952	487,276	168,873	298,881	394,854
1843	142,899	132,476	804,431	191,132	448,321	223,668
1844	229,871	197,289	1,052,908	348,928	827,084	696,937
1845	149,759	204,841	1,056,240	377,581	719,483	642,088
1846	175,143	209,203	1,133,657	323,155	739,793	737,199

Years.	Linen manufactures, including Linen Yarn.	Silk manufactures.	Tin & pewter wares; Tin, unwro't, and Tin Plates.	Woolen manufactures, including Yarn.	Other articles.
1840	£976,247	£274,159	£174,033	£1,077,828	£570,968
1841	1,232,247	306,757	223,809	1,549,926	592,318
1842	463,645	81,243	144,451	892,335	422,404
1843	715,546	164,233	171,890	1,564,470	453,648
1844	938,392	189,698	301,756	2,462,748	692,468
1845	911,318	218,377	350,333	1,805,181	712,462
1846	852,778	225,364	379,500	1,345,057	709,611

Aggregate value of British and Irish Produce and Manufactures, exported from the United Kingdom to the United States of America.

1840.	1841.	1842.	1843.	1844.	1845.	1846.
£5,283,020	7,098,642	3,528,807	5,013,514	7,938,079	7,147,663	6,830,40[illegible]

IMPORTS FROM THE UNITED STATES OF AMERICA.—An account of the quantities of the various articles imported into the United Kingdom from the United States of America, with the quantities so imported entered for home consumption.

Years.	Bark for Tanners' or Dyers' use. Imported. Cwts.	Bark for Tanners' or Dyers' use. Home consumption. Cwts.	Beef, salted. Imported. Cwts.	Beef, salted. Home consumption. Cwts.	Cheese. Imported. Cwts.	Cheese. Home consumption. Cwts.
1840	37,776	30,073	77	17	——	——
1841	60,014	31,487	22,429	258	15,038	8,239
1842	27,648	21,353	7,024	2,898	14,907	13,913
1843	11,684	18,108	31,026	528	42,312	38,033
1844	20,990	29,579	76,660	487	53,114	55,414
1845	25,822	Free.	73,135	474	66,337	61,291
1846	23,473	Free.	161,668	Free.	91,901	82,046

Years.	Skins, Fox. Imporetd. No.	Skins, Fox. Home consumption. No.	Skins, Marten. Imported. No.	Skins, Marten. Home consumption. No.	Skins, Mink. Imported. No.	Skins, Mink. Home consumption. No.
1840	39,970	556	20,107	22,337	88,579	23,286
1841	71,335	1,366	40,998	32,698	109,257	52,218
1842	31,385	2,220	16,808	30,046	73,197	79,315
1843	51,670	2,048	25,144	20,384	94,773	66,695
1844	49,560	407	18,992	21,189	149,080	70,739
1845	46,964	Free.	39,340	Free.	205,276	Free.
1846	56,508	Free.	30,818	Free.	207,366	Free.

Years.	Corn, Wheat. Imported. Qrs.	Corn, Wheat. Home con. Qrs.	Corn, Wheat Flour. Imported. Cwts.	Corn, Wheat Flour. Home con. Cwts.	Hides, untanned. Imported. Cwts	Hides, untanned. Home con. Cwts.
1840	73,755	58,326	984,467	875,068	5,872	5,822
1841	10,553	27,087	359,745	311,490	1,699	1,705
1842	16,111	16,056	380,933	333,285	7,248	6,173
1843	——	——	91,317	16,521	11,578	10,739
1844	2,421	2,421	292,011	29,122	26,781	27,150
1845	23,239	595	246,341	6,071	28,109	Free.
1846	171,155	142,034	2,229,580	2,132,244	26,798	Free.

Years.	Skins, Musquash. Imported.	Home con.	Skins, Raccoon. Imported.	Home con.	Skins, Seal. Imported.	Home con.
	No.	*No.*	*No.*	*No.*	*No.*	*No.*
1840	138,398	228,613	492,539	467	2,041	13,211
1841	191,944	127,819	507,785	1,976	8,178	8,178
1842	300,976	358,003	175,525	40,218	24,112	2,848
1843	288,036	108,619	375,993	60,510	68,287	34,399
1844	223,232	165,704	362,349	9,366	—	450
1845	1,670,566	Free.	546,680	Free.	32,380	Free.
1846	7,132	Free.	539,746	Free.	12,108	Free.

Years.	Iron, Chromate of. Imported.	Home con.	Lard. Imported.	Home con.	Oil, Spermaceti. Imported.	Home con.
	Tons.	*Tons.*	*Cwts.*	*Cwts.*	*Tons.*	*Tons.*
1840	5 7	593	—	—	1,408	350
1841	395	650	4,729	3,044	501	1,166
1842	941	1,046	26,555	24,977	1,171	294
1843	808	808	76,010	60,641	1,866	1,642
1844	2,060	2,060	69,138	81,445	1,052	1,468
1845	1,750	Free.	44 358	Free.	3 783	2,792
1846	1,071	Free.	85,666	Free.	2,207	2,975

Years.	Tallow. Imported.	Home con.	Tar. Imported.	Home con.	Tobacco, unmanufactured. Imported.	Home con.
	Cwts.	*Cwts.*	*Lasts.*	*Lasts.*	*Lbs.*	*Lbs.*
1840	3,870	4,766	1,243	1,275	34,628,886	22,169,551
1841	1,208	1.208	2,273	2,244	42,132,969	21,260,407
1842	28,040	26,864	1,560	1,566	38,594,236	21,223,159
1843	46,503	43,980	1,600	1,733	41,039.597	21,894,764
1844	52,799	54,567	873	893	36,615,985	23,298,563
1845	52,056	47,686	1,239	Free.	31,151,472	24,700,881
1846	60,546	67,182	1,556	Free.	48,612,355	25,237,008

Years.	Pork, Salted. Imported.	Home con.	Rice, not in husk. Imported.	Home con.	Rice,* rough and in husk. Imported.	Home con.
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*	*Qrs.*	*Qrs.*
1840	7	2	848	230	41,523	17,605
1841	10,078	259	145	53	40,313	32,377
1842	13,408	6,523	2,686	444	40,377	38,898
1843	9,882	1,556	13,874	4,065	18,596	14,076
1844	24 342	1,032	5,149	828	36,603	27,156
1845	21,774	1,138	4,553	413	43,178	23,920
1846	45,453	Free.	40,340	27,736	29,789	25,192

*Exclusive of quantities cleaned in the United Kingdom, and exported on drawback.

Years.	Tobacco. Manf. or Segars. Imported.	Home con.	Turpentine. Imported.	Home con.	Wax, Bees'. Imported.	Home con.
	Lbs.	*Lbs.*	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*
1840	1,163,832	7,771	349,136	382,014	381	326
1841	1,435,898	7,137	361,622	338,916	459	472
1842	281,172	7,031	408,330	453,428	1,094	920
1843	624,192	6,330	473,183	473,577	2,362	1,669
1844	615,950	3,685	452,195	466,550	1,664	1,654
1845	1,719,956	5,424	507,655	Free.	1,294	Free.
1846	1,409,059	5,254	355,766	Free.	1,326	Free.

Years.	Seeds, Clover. Imported.	Home con.	Seeds, Linseed and Flaxseed. Imported.	Home con.	Skins, Bear. Imported.	Home con.
	Cwts.	*Cwts.*	*Qrs.*	*Qrs.*	*No.*	*No.*
1840	—	2	9,164	9,010	4,693	552
1841	13,293	6,164	3,693	3,860	6,579	344
1842	22,632	24,177	2,448	2,593	5,126	90
1843	8.976	6,216	3,670	3,670	5 377	494
1844	7,796	11,599	2,876	2,864	5,128	303
1845	29,265	20,755	10,381	Free.	4,128	Free.
1846	26,469	31,491	7,536	Free.	5,573	Free.

Years.	Wood and Timber, not sawn or split. Imported.	Home con.	Wood and Timber, Staves. Imported.		Home consumption.	
	Loads.	*Loads.*	*Gt. hund.*	*Loads.*	*Gt.hund.*	*Loads.*
1840	2,282	2,282	677	....	....	....
1841	2,905	2,514	705	....	....	....
1842	1,032	690	747	231	17	20
1843	6,574	4,025	....	810	....	116
1844	1,059	3,955	....	208	....	180
1845	1,979	2,335	Free.	7,962	Free.	Free.
1846	20,452	11,750	Free.	15,275	Free.	Free.

Years.	Skins, Beaver. Imported.	Home consumption.	Skins, Deer. Imported.	Home consump.
	No.	*No.*	*No.*	*No.*
1840	12,180	12,104	409,208	90,149
1841	15,250	14,971	126,970	82,406
1842	12,881	9,751	155,176	39,177
1843	8,913	10,333	161,014	55,945
1844	5,601	6,355	107,643	30,893
1845	4,471	Free.	171,843	Free.
1846	577	Free.	152,988	Free.

Years.	Wool, Cotton. Imported.	Home consumption.	Wool, Sheep and Lambs'. Imported.	Home consumption.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*
1840	487,856,504	452,990,122	115,095	235,967
1841	358,240,964	353,353,509	58,791	42,500
1842	414,030,779	386,107,190	561,028	287,626
1843	574,626,510	509,475,209	126,615	212,577
1844	517,218,622	454,967,749	29,355	Free.
1845	626,650,412	Free.	835,448	Free.
1846	401,953,804	Free.	901,024	Free.

The following extract from a speech recently made by Mr. Niles, in the Senate of the United States, is credited by the St. Louis Republican to the Richmond Whig.

We commend it to the attentive consideration of our readers, and more especially to the provision and grain growers of the west.

The opinion has generally been entertained in this country that the British Corn Laws were the only obstacle to the consumption of American breadstuffs in Great Britain; and it was pretty generally believed that when the poorer classes of that country learned to cook and eat Indian corn, the people of the west would find a market for all they could grow. Let us observe how this matter stands after the experience of two years.

The recent famine caused a suspension of the Corn Laws, and necessity compelled the poorer classes to use Indian corn to a very considerable extent; and for a time this article appeared to be in great favor, there being a less difference between the price of corn and wheat in Great Britain than in this country. But as soon as a favorable crop is gathered, neither the suspension of the Corn Laws nor the acquired fondness for Indian corn can induce the people of Great Britain to purchase more of our breadstuffs than formerly; and we find the quantity of corn exported to Great Britain, which was 6,931,640 bushels for the six months ending on the 4th of March, 1847, reduced to 1,337,204 bushels for the six months ending on the 4th of March, 1848, and even a large part of this was shipped before the effects of the famine had passed away. These facts ought to convince the American people of the folly of looking abroad for a market for their grain.

Statement of the exports of Breadstuffs from this country to Great Britain, from September 1, 1847, *to March* 4, 1848.

From—	FLOUR. Barrels.	MEAL. Barrels.	WHEAT. Bushels.	CORN. Bushels.
New York,	137,082	30,913	177,934	751,170
New Orleans to Feb. 26,	13,554	20,656	33,195	322,830
Philadelphia,	1,435	19,639	——	76,049
Baltimore,	770	1,796	4,000	88,478
Boston,	504	3,100	——	77,494
Other ports to February 26,	——	——	——	21,184
Total,	153,445	76,104	215,139	1,337,204
The exports for the same period a year ago were	1,258,876	248,859	1,273,882	6,931,640
Decrease,	1,105,431	173,748	1,068,743	5,594,436

"I have computed the value of these exports for each period in New York, assuming for last year's prices $8 50 for flour, $2 25 for wheat, $5 50 for meal and $1 12½ for corn, and for the last period the prices ruling at the present time. The total value of the exports for the first period exceeds $22,000,000, and those of the last period a little more than $2,000, and showing a difference of over $20,000,000. The freights for the first period exceeds three millions of dollars, and for the last are less than two hundred thousand; so that the loss on freights, had it all gone to American citizens, exceeds the whole amount of exports and freights for the last six months. The facts in this statement were taken from the Commercial Shipping List, and are presumed to be substantially correct."

MANUFACTURE OF BELLOWS' IN ST. LOUIS.

We were much pleased a few days since with a visit to the Bellows Factory of J. B. M'Kown, on Tenth Street, between Locust and Olive streets. The enterprize and industry of the proprietor of this establishment, commend him to the consideration and patronage of the citizens of the west, generally. Commencing what was at that time a new branch of business in St. Louis, he met with but little encouragement in the beginning. But by firmness and perseverance he has succeeded not only in building up a manufacturing establishment which yields him a handsome revenue, but by its superior quality and cheapness, his article has driven the eastern bellows from the market, and he can, in fact, manufacture the article cheaper here than can the eastern manufacturer. This is an additional fact in support of our oft-repeated proposition, that the Valley of the Mississippi contains all the elements necessary for manufacturing purposes; and at no distant day must become the great manufacturing district of the United States—while St. Louis must become the great central mart of concentration and distribution; and let none be surprised if in a few years hence the rail roads,

canals, &c., which the east with such eagerness and energy is extending through the heart of the west for the purpose of drawing to themselves the raw material to be manufactured at their own establishments, should carry back to the shores of the Atlantic manufactured fabrics from the work shops of the west, for the eastern and European markets. All of this and more will come to pass. Let him, therefore, who would not be behind the march of events, look and observe, and shape his business to meet this *inevitable* destiny of the west, arising from imperious and uncontrollable circumstances.

This establishment manufactures about six hundred pair of bellows per annum, of very superior quality, both in material and workmanship, consisting of the common blacksmith bellows, a very superior article of furnace bellows used in the different mining regions of the west in smelting; also a cylinder bellows which is used for the same purpose.

This establishment uses about 1,200 sides of leather per annum, at a cost of about $3,000, about 50,000 feet of lumber, about 7,000 pounds of iron, 400 pounds of glue, $100 worth of paint, $200 in hinges, screws, tacks, &c.

MINES AND MINING.

MISSOURI COPPER.

We were highly gratified yesterday to see, at the store of Messrs. Poindexter & Wilson, corner of Main and Market streets, a sample of copper from the mines in Franklin county, in this State. The lot consisted of about 700 weight of pig metal, pure and free from foreign particles. This copper, we learned, was produced by Mr. Philips, who has no experience in the process of smelting copper ore, and knows but little of its properties or characteristics Induced by curiosity, he took a quantity of ore, which he says they call the green carbonate, and in a common blacksmith's hearth, with the ordinary bellows of a blacksmith's shop, he produced the above stated amount of pure metal. He says that, weighing the ore and the pig metal, he ascertained, that the ore yielded rising of *thirty per cent.* The purity of the metal may be estimated from the fact, that it was sold in this market at from sixteen to eighteen cents per pound, and promptly taken. An experiment was made yesterday, at the extensive Foundry of Messrs. Burd, Rucker & Co., by casting a portion of it into a bell, which is said to be the proper test of its purity. The result of the experiment we have not yet ascertained, but the melting and process of casting was highly satisfactory to the workmen.

The mine from which this ore was taken is known as Hurst's Mine, is about sixty miles from this city, in Franklin county, and in the vicinity of several large deposits of similar ores. There are, in that vicinity and in all the country round about, indications of rich deposits of this mineral. It is in the centre of an ex-

cellent agricultural country, capable of subsisting any amount of labor, and within a convenient distance to this market, with a natural road that requires but little expenditure to render it available the year round. The seasons here are such that the mines may be worked the whole year, and the requisite timber, &c., are abundant.

In these copper mines, the State of Missouri has a greater amount of wealth than has yet been discovered in the famous copper mines on Lake Superior, or in the numerous lead discoveries of this and other Western States. Gentlemen of science and information, who have visited and critically examined the mines, say, that the amount of ore is without limit, and that all the tests which have been made show, that it is of a very rich kind. The only drawback thus far has been the want of a proper mode of smelting the ore. That it is practicable, by the application of proper means, this experiment proves beyond a doubt; and that the ore is extraordinarily rich, is shown by the fact, that by a very imperfect manner of smelting, it has been made to yield *thirty* per cent.

A great drawback to the development of these mines is to be found in the fact, that a large portion of the lands in that vicinity are yet held by the Government, and whenever an important discovery is made, the discoverers endeavor to conceal their information, lest some one else should come in and purchase some other lands desired by them. We have regretted this selfish spirit, because it serves to prevent the introduction of capital into the country, and of course prevents any extension of mining operations.—*St. Louis Republican.*

IRON: A SHORT SKETCH OF ITS PRODUCTION.

BY DR. L. FEUCHTWANGER.

To the Editor of the Merchants' Magazine, &c.

This metal occupies at the present day a more important rank than any other metal. While we can exist without the use of the precious metals, iron is as indispensable to the comforts of man, as nourishment is to the support of life. With the increase of the population, and civilization of the inhabitants of the world, the consumption and application of iron must increase in proportion; so also its uses will be more accessible, according to the advancement of science and improved knowledge of simplifying the process of its easy and economical extraction from the ore. Already the quantity of iron which is annually consumed in the United States, goes beyond conception. The quantity of pig iron produced in the United States, in 1810, was 53,908 tons; while, in 1847, the quantity of pig iron made here exceeds 500,000 tons. The latest improvements, by the hot blast and other contrivances, have increased the product of pig metal fifty per cent., so that we may reasonably expect the product of pig iron to be about 700,000 tons, which, at the average price of $35 per ton of No. 1 pig iron, would be a revenue to

the States where it is produced of $24,500,000, the principal part of which goes to the States of Pennsylvania, New York, and Tennessee. The State of Missouri, with its inexhaustible deposits of superior iron, has not until lately, produced any pig iron, although the city of St. Louis, containing twelve of the largest foundries in the western country, for the construction of machinery, steamboats, &c., has been obliged to import its pig iron from great distances on the Ohio, Tennessee, and Cumberland Rivers. The Iron Mountain, which is supposed capable of furnishing 600,000,000 tons, is beginning to supply, in a small measure, the demand; but the cost of transportation from the interior, nearly fifty miles, enhances its expense. Within a few months, however, a company of some enterprising St. Louis merchants have opened an immense deposit of rich iron ore, contiguous to the Mississippi River, which bids fair to supply the demands for pig iron in St. Louis, and the Missouri and Upper Mississippi Valleys. I allude to the St. Louis and Birmingham Iron Company, a distance of two miles from the town of Birmingham, and 120 miles below St. Louis. The iron ore which I have seen, and of which I possess specimens, is, I should judge, sixty per cent., and is easy to flux. The coal-beds on the opposite shore, in Illinois, yield the most inexhaustible supply of superior bituminous coal. Charcoal, as well as stone coal, can be had at the furnace for about three cents per bushel; and there is no reason why the company should not produce 100 tons of pig iron per week, by each furnace, and why they cannot erect four furnaces, so as to produce 400 tons of pig iron, worth in St. Louis $40 per ton.

The location of the town of Birmingham offers, perhaps, the most encouraging inducements for the establishment of a United States armory, which will sooner or later be required by the government in the western country, for the manufacture of ammunition and other war implements. The Mississippi River offers there the best channel for the landing of steamboats, at all seasons; and the St. Louis and Birmingham Iron Company will, I trust, be capable of furnishing all the varieties of iron required in the western country, such as bar, bloom, and rail road iron.

We have received from Frederick Woolford, Esq., of Caledonia, Missouri, quite an extensive collection of specimens of clay, kaolin and ores; also, specimens of several varieties of ware, manufactured at his establishment. Among the latter are some very fair specimens of queensware. We have not as yet had time to analyze and class the specimens of ores, &c., but hope that we shall be able to give an account of them in our next number. The specimens may be seen at the office of Dr. H. A. Prout, on Pine street in this city.

TO AGENTS.

Such individuals as have been requested to act as agents, will please to let us hear from them at an early day.

OUR EXCHANGE LIST.

THE CULTIVATOR.

The first four numbers of the 5th volume, new series, of this periodical has been received. The merits of this work has been long established throughout the country, and we should be pleased to see it more generally patronized in the west. We think that every farmer who reads the Cultivator will feel satisfied at the end of the year that he has got the full value of its price.

HUNT'S MERCHANTS' MAGAZINE.

We are indebted to the able and industrious Editor of this highly valuable periodical for the April number. It contains much interesting matter and comes fully up to the standard of the work. By the way, we beg to make one suggestion to the Editor: we have examined his rail road statistics, in some six or eight numbers, with a view of ascertaining the charges for the transportation of freight on the different roads, but have met with no tables which give this information. These are facts that would be highly interesting to the people of the west.

SOUTHERN LITERARY MESSENGER.

The April number of this highly interesting work has been received. It contains several articles of more than ordinary merit, which fully sustain the high character of the work.

THE WESTERN LANCET.

The first four numbers of the seventh volume of the Western Lancet is before us, and although not exactly in our line, we are, nevertheless, under obligations to the publishers, and shall be pleased to continue the exchange. The preservation of health is a subject of the highest interest to every individual, and comes properly within the range of political economy. Inquiries into the causes which produce disease in different parts of the country, might be made the means of preventing much suffering—and we should at all times be pleased to do any thing in our power to promote such investigations.

AMERICAN PHRENOLOGICAL JOURNAL.

The April number of this long established work has been received.

THE AMERICAN ARTIZAN.

We have been in regular receipt of this valuable paper for some time, and take pleasure in recommending it to the patronage of our readers, especially to the mechanics of the west.

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1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal Improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

JUNE, 1848.

VOLUME I. NO. VI.

THE WESTERN JOURNAL,

OF

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AND

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N. B.—To whom reference will be given by calling at the School Room.

March 1, 1848.

THE

WESTERN JOURNAL,

M. TARVER AND T. F. RISK,

EDITORS AND PROPRIETORS.

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THE

WESTERN JOURNAL.

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ART. I.—ARTIFICIAL AGENTS OF EXCHANGE.

Having noticed in the preceding numbers of the Western Journal the nature of the agency performed by the merchant and the carrier, we now propose to consider the nature of a different class of agents, which, although artificial, are nevertheless essential to the advancement of civilization.

Among these artificial agents, money may be regarded as the first in point of importance; for, independently of its intrinsic utility as an agent in effecting the exchange of other commodities, it would seem to be endowed with some inherent property that exerts an influence at once potent and mysterious, over the moral nature of man. The power of money is derived from the universal assent of the civilized world, and its most important function is that exercised in facilitating the exchange of other commodities. This is the fundamental principle involved in its use, and should be constantly borne in mind by those who desire to understand its true nature.

The adoption of symbols as the representatives of useful commodities is among the most ancient of the social institutions, and the same idea seems to have occurred to every people in the earliest stages of their civilization; for, even barbarous tribes, ignorant of almost every civil art, and unacquainted with the precious metals, have, nevertheless, conceived the principle involved in the use of money, and for the want of better defined symbols, use shells and other things of no intrinsic value, as the representatives of useful commodities.

Indeed, it is difficult to conceive how the human family could have emerged from a state of barbarism without the adoption of some arbitrary and conventional representative of the value of those things which were necessary to their comfort and convenience; for, without such a representative, the time consumed and the inconvenience incurred in effecting the exchange of commodities, would be greater than the labor of producing them; and would tend to discourage the production of all such as were not essentially necessary to the subsistence and

comfort of the producer. Without such an agent as money, if the producer of corn should need a coat, he must not only find an individual who had a coat to dispose of, but he must find one who desired to exchange it for corn: and if no such individual could be found, the farmer must go without a coat, or otherwise enter into a series of exchanges, for the purpose of procuring an article which the owner of the coat desired to obtain. It was to remedy the inconvenience of effecting the exchange of commodities by bartering, that the principle involved in the use of money was adopted. The proposition was simple, and easy of apprehension, and only required the selection of a proper symbol to put the principle in operation; and the precious metals would seem to have been designed for that purpose—for owing to the peculiar manner in which they are distributed throughout the earth, they can never be produced in quantities so large as to cause a sudden depreciation in their value; while the desire to obtain them ensures the constant working of the mines, so as to prevent a decrease in quantity; and thus the labor employed in mining, is made to regulate the money price of all other labor. This is the principle involved in the use of the precious metals as symbols; and, although they appear to have been wisely selected, it does not follow that the exchange of commodities could not have been effected by other arbitrary symbols, as well as by the precious metals. It is remarkable, that notwithstanding the principle of exchanging commodities by the use of an arbitrary representative of their value has been so long understood and acted upon, yet the laws governing the circulation of money should be so imperfectly understood at the present day. This is owing to the fact that its use and circulation are so intimately connected with the production, exchange, and consumption of useful commodities, that it is impossible to understand it as an independent and distinct subject; nor can it be fully comprehended without embracing the entire subject of political economy. Owing to the facility of exchanging money for whatever the possessor may desire, we very naturally forget that it is an agent, and invest it with all the powers of a principal. Acting upon this error, it becomes the primary object and end of all pursuits, while the substance is sacrificed to obtain the shadow. Such is the case with the farmer, who, aiming to grow rich by the acquisition of money, wears out his land, and permits his houses and enclosures to fall into decay; and such is the case with him who, possessing means sufficient to ensure every reasonable comfort, yet continues to exert every faculty of both body and mind, in the pursuit of wealth. For the former will discover in the end that his labors have simply resulted in exchanging the permanent and substantial wealth which he possessed in his soil, for its equivalent in money; and that his gains consist in the privilege of purchasing, and in like manner wearing out another farm; or, haply, if he perceives his folly, he may appropriate his money, and an equal amount of labor to the purpose of restoring his exhausted farm to its original state of fertility: while the latter, will in time, perceive that he has exhausted his muscular strength, denied

himself the comforts of physical repose, neglected to improve his opportunities of mental and moral improvement, and sacrificed all the pleasures which these were designed to afford for that, which to him, is worse than useless.

Although the amount of money in circulation in a given country may be regarded as the representative of all the labor and property within its limits, yet it is not, nor can be, made a permanent standard of value; for every individual being left free to exchange his labor or property for money, or not, as he may choose, the measure of its value is subject to the agreement of the parties concerned in every transaction of exchange; and hence, it frequently occurs, that at the same time and place, money cannot be exchanged, with different individuals, for the same quantity of a given commodity. One is willing to exchange corn for money at the rate of twenty five cents per bushel, while another demands thirty cents for the same quantity; and thus, in every case of exchange, the parties agree upon the value of money according to the opinion which they respectively form in regard to their own interest or convenience; or, it may be that one or the other is compelled by necessity, to yield to an exorbitant demand; and thus, it will be perceived that "the intrinsic value of money," a phrase which is often used by the politician, is the most vague of all unmeaning terms, especially in the sense in which it is generally used—for, if it possesses an intrinsic value besides its use as a mere metalic substance, this consists in its functions as a general agent of exchange; while its specific value is the subject of agreement between the parties to each transaction.

As an agent in effecting the exchange of other commodities, it is in strict accordance with the nature of money to accumulate and abound most where the greatest amount of commodities are exchanged; and therefore, it as naturally tends to the great commercial marts, as matter to the centre of gravity. As we proceed from these great marts towards the extremes of the commercial circle of which they constitute the centre, the representative value of money gradually increases, or, in other words, it becomes dearer, while lands and provisions become cheaper. This difference in the value, and quantity of money between distant points, however, would not be important was there no commercial intercourse between them; but it is clear that in the exchange of commodities between the centre and the distant points within the circle, the advantages are greatly in favor of the former—for, if the money value of lands and provisions materially differ in different countries, the commerce between them cannot be placed on grounds of equality.

The high price of lands and provisions necessarily enter into and influence the price of every other commodity, and if the people of a country where the price of lands and provisions rules high, as in Great Britain, should exchange their manufactures for the raw material of a country where the price of lands and provisions was low, as in Missouri, the former would enjoy the singular advantage of selling their agricultural products at prices which would pay them a fair profit on

lands valued perhaps at two hundred dollars an acre; while the latter would pay for them in raw material, at a price which only pays a moderate profit on land valued at from five to ten dollars per acre; and thus by purchasing the manufactures of England, we are sustaining the high prices of lands and provisions in that country, and depressing them in our own.

The immense commerce of England draws to that country a larger amount of money than is found in any other; and hence money is cheaper and lands and provisions dearer there than in any other part of the world; and labor is also dearer than in any other country, except the United States. Now, it is evident that these high prices could not be sustained, unless she could sell her manufactures to the people of other countries, at prices corresponding with the prices of her lands and provisions, and purchase their raw material at prices corresponding with the price of lands and provisions where it is produced. This is the course that England has hitherto pursued; and hence she has enriched herself from all the nations of the earth. But no people have ever become rich by British commerce—nor can such an event happen so long as the products of her soil continue at former and present high prices, and she to find a market for her manufactures.

After long experience the people of this country have begun to perceive that we have gained but little by British commerce; but they appear greatly puzzled to find out the cause. Among the many causes assigned, the low price of labor in Great Britain is considered by many as the most prominent. But the average difference between the price of labor there and here, constitutes but a small item in the list of disadvantages against which we have to contend in our commerce with that country. Labor there is dependent upon capital, and wages are reduced to the lowest point that will sustain the operative in a working condition; this is necessary to enable the manufacturer to meet competition from other countries, and also for the purpose of sustaining the high prices of land and provisions; but "pauper labor," as it is sometimes called, is but as the dust in the balance, when compared to the immense amount of machinery, the large profits of real estate, and the fixed capital of the Bank of England. These constitute the elements of the great power against which we have to contend in our commercial intercourse with that country. With such advantages against us, it is our true policy to limit our commerce with her to the exchange of such commodities only as are essentially necessary to our comfort and convenience. For as long as money remains cheaper in Great Britain than in the United States, the advantages growing out of an exchange of commodities, must remain in her favor.

It may be asked, if money is dearer in the United States than in Great Britain, why it does not come here for investment? This would be in conformity with one of the laws of its circulation were not this law modified and controlled by the causes just mentioned. Owing to these causes, the people of Great Britain avail themselves of all the benefits of the high price of money here, while they still keep their own precious metals at home.

If we have made our views intelligible to our readers, they will perceive the importance of lessening, as far as practicable, their reliance upon foreign countries for the sale of their raw material, and also for the purchase of foreign fabrics; for we are fully persuaded that it is only by encouraging the manufacture of our own raw material, and consequently enlarging our internal commerce, that we can avoid the disastrous effects of foreign revulsions. Nor can we by any other means secure to the agriculturists of the United States the just reward of their labor. We have furthermore endeavored to show the tendency of money to accumulate in the great commercial marts, and that this accumulation operates to the disadvantage of those who reside at a distance from the place where their exchanges are effected. From this we discover the importance of encouraging and building up markets as near home as practicable. This is a subject in which the people of the west are vitally interested, for until the farmer of this Valley can find a market for his produce, nearer than the coast of the Atlantic, he must be content to receive a far less reward for his labors than do those in that region.

[TO BE CONTINUED.]

ART. II.—THE MORALS OF COMMERCE.

NOTES OF A LECTURE DELIVERED BEFORE THE YOUNG MEN'S MERCANTILE LIBRARY ASSOCIATION OF CINCINNATI, NOVEMBER 30TH, 1847, BY T. WALKER.

My subject is "*the Morals of Commerce.*" I have given it this name for want of any one more definite, under which I could bring together a variety of random thoughts, all more or less connected with the mercantile profession, but not susceptible of a convenient arrangement under a less comprehensive title. What I shall say will have reference principally, to two things; first, the *preparation* for a mercantile life, and, secondly, the line of *conduct* to be pursued therein.

First, then, as to the preparation. And here the result to which I would conduct your minds is, *that to the merchant knowledge is capital.* If it be a general truth in human affairs, that knowledge is power, I hold it to be pre-eminently so in regard to mercantile pursuits. Without it, all the capital of a Girard or an Astor, would not make a merchant; and with it, as the principal thing, capital soon follows as an incident. Accordingly, the first duty of every person destined for a merchant, is to prepare himself, by a suitable education, for an intelligent discharge of his diversified functions—just as much so, as of a lawyer, a physician, or a clergyman; and to this end, there is just as much need of commercial schools and colleges, as of any other—and these, I rejoice to say, we are beginning to have in all our commercial cities. We have, too, commercial dictionaries and magazines—a distinct commercial department for newspapers—chambers of commerce—boards of trade—reading rooms—and, best of all, library associations.

All these things bear gratifying testimony to the increased interest taken in mercantile education. And why should it not be so? Why should not the mercantile profession stand side by side with the other so called liberal professions? There is, in truth, no good reason, whether we look to its dignity, difficulty, or utility. For what is commerce? and who is the merchant?

In the sense in which I am considering it, commerce comprehends whatsoever relates to the exchange of commodities between individuals and nations. Regarded then as a mere department of business, what a stupendous concern it is! Even if the products of the earth were every where the same—instead of being so wondrously, yet admirably diversified—even then that ever active principle, the division of labor, which restricts every worker, as far as possible, to a single operation, in order that practice may make him perfect, would still require the co-operation of a countless number of individuals in supplying the wants of each; and this alone would create an immense commerce. There is probably not a person in this presence, whose mere covering is not the product of more than ten thousand hands. But the commerce, growing out of these exchanges is almost nothing, when compared with that which results from that endless variety of soil, climate, taste, and character, by which it has pleased the all-wise Creator to distinguish the different portions of the globe. I presume there is not one of you who passes a single day, to the comforts of which each quarter of the earth, if not every parallel of latitude, has not contributed something peculiar to itself. And it is only when we contemplate commerce on this world-wide scale; when we think of all the productions of every clime, every machine, and every working animal up to man, as constantly passing over the land, and over the sea, in one mighty circle of exchange and distribution—it is only then that we can rise to any thing like an adequate idea of what commerce really is. It is only then that we recognize in commerce the grand instrument of human civilization, as well as the medium of supplying mere physical wants; and cease to wonder at the deep reverence paid to the merchant princes of those early days, when commerce first opened the highway of the world, and caused the light of knowledge to shine upon the darkness of the middle ages.

But from the general idea of commerce, let us descend to a brief analysis of its principal functions, for the purpose of deducing therefrom the particular branches of knowledge essential to every merchant, who aspires to be anything more than a mere trader. Of course I say nothing of the elementary branches of school education, for these belong to every body. But presupposing these, I observe that, commerce, being pre-eminently a national concern, the regulation of it has been committed exclusively to the National Government. Hence, every merchant should acquaint himself with our *commercial treaties* and *navigation laws*, together with the general subjects of finance, currency, tariffs and revenues, upon which those treaties and laws are predicated. In short with the science of *political economy*. Nor should he be ignorant of so much of the *law of nations* as determines

the commercial rights of belligerent and neutral nations in case of war. If to this view it be objected that I require every merchant to be a statesman, I reply, that I know of no better preparation for the practical duties of statesmanship, than mercantile pursuits conducted on a large and liberal scale; and the history of our government, had I time to adduce it, would prove that whatever is of wisdom in the commercial legislation of Congress, or the commercial measures of the Executive, is wholly attributable to those enlightened and accomplished merchants, who, when not themselves members of Congress or of the cabinet, have been resorted to by those who were, for their advice and aid. The truth is, that in every commercial nation—at London no less than at Washington—from the very necessity of the case, merchants must, either directly or indirectly control the government in respect to commercial regulations, because no other persons have the requisite knowledge. And if such be the influence of this class upon the government, the reciprocal influence of the government upon mercantile interests is not less important. In either aspect therefore, the merchant should, to the extent above stated, have the education of a statesman.

Descending now from these general subjects to those of more immediate and daily concern, and taking up commercial operations in the natural order of events, we are led directly to the following subjects of study—

First—That comprehensive knowledge of Geography, which comprises not only the productions peculiar to each region, and the channels of transportation, but also the wants of each region—in short, every thing connected with supply and demand.

Secondly—An essential requisite for buying and selling well, is to understand what constitutes a bargain in the eye of the law—all that relates to the contract of sale, whether private or at auction.

Thirdly—The great business of transporting merchandize from place to place by common carriers, makes it necessary for the merchant to understand their rights and responsibilities.

Fourthly—Merchandize, in the course of transportation, and when lying in the warehouse, is exposed to various perils, which have given rise to a complicated system of insurance, with which the merchant should make himself familiar.

Fifthly—For the purpose of increasing their capital or other means, merchants often find it convenient to associate themselves in partnerships or corporations; with the nature of which relations, therefore, they should be well acquainted.

Sixthly—In almost all mercantile operations, there is a necessity of employing agents of various descriptions; and this makes it necessary for a merchant to understand the rights and duties of this important relation of principal and agent.

Seventhly—Credit has become so important an element in commercial operations, in the shape of bills of exchange, promissory notes, and guarantees, that a knowledge of these contracts has become indispensable to the merchant.

Eighthly—The relations of debtor and creditor, so far as relates to the facilities furnished by law for the collection of debts in different places, and the operation of bankrupt or insolvent laws, should be well understood by the merchant.

I may be told that I am requiring every merchant to be educated for a lawyer. I answer, that while there is a vast field of law which I would not advise the merchant to meddle with, I would have him study the general principles of mercantile law, for the same reason that I would have a mechanic familiar with the tools of his trade. Indeed so essential do I deem this kind of knowledge to every merchant, that, were I educating my son for that profession, I would set apart at least two years of his noviciate expressly for this study—nay more, so much do the two professions run into each other, especially in commercial cities, that if I were educating my son for the law, I should desire to have him spend at least the same period in a good counting-room. I speak now from my own professional experience. After having occupied more than the usual time in preparing to practice law, when I entered upon the practice, the most serious want I encountered, was the want of a more accurate knowledge of those customs of merchants, which constitute so large a part of mercantile law. But while I make this confession let me say, on the other hand, that a somewhat extensive professional intercourse with the mercantile class, has often caused me to feel astonished at their profound ignorance of their legal rights and duties, although to that very ignorance I was indebted for the need of my professional services. Permit me then to conclude what I have to say upon this part of my subject, by earnestly recommending to this association to provide for an annual course of lectures upon commercial law. I feel confident that, in the shape of lectures, you cannot spend your time or money better. Be assured that you will find such knowledge to be capital.

But it is time that I turn from the subject of *preparation*, to that of *conduct*. And I begin this branch of my subject with the remark, that, as there is no department of business in which, from its very nature, men are obliged to repose so much confidence in each other, so, there is none in which the highest integrity is so much required. If it be a common maxim that honesty is the best policy—it becomes a fundamental truth in commercial transactions. Here, as in geometry, the *straight line* is always the shortest distance between two points. The *customs of merchants* have created, and now constitute the great body of commercial law, of which it has long been the boast, that it approaches nearer to the strictly ethical standard, than any other branch of law. Of the law in general—alas! that I should be obliged to say so—too often you cannot answer the question, what is the law?—by resolving a still higher question, what is right between the parties? Nor can this always be done in controversies between merchants. For, in either case, we must resort to the precedents for a rule, and not to the untrammelled conscience of a good man. But then in commercial law, the precedents themselves have been based upon a higher morality, than in any other branch,

because the customs of merchants created them, and they have been most recently established. Yet the commercial code is very far from furnishing a rule for every case; and no class of men have more frequent occasion to consult the higher code of ethics, than conscientious merchants.

To take a single example by way of illustration: There is not perhaps a more difficult question in ethics, than this, which the merchant is required to solve almost every day—namely, how far, in making a bargain, he may rightfully avail himself of knowledge which he knows the other does not possess, without informing him of it. In other words, where is the dividing line between fair dealing and cheating? And this question has acquired a new importance, now that the lightning has been harnessed to the newsman's car. Now if we go to the law for a solution, we find it laid down that fraud will be fatal to any bargain; but, at the same time, that parties are not required to contract with equal advantages, nor for equivalent considerations. If a man has understanding enough to comprehend common things of every day life, the law pronounces him to have a contracting and disposing mind; and then if the other party makes no misrepresentation, the bargain is valid, though he may have much the best of it. He has a right to conceal his superior knowledge. Yet this general rule is subject to many exceptions, one of which occurs in the matter of insurance, where concealment by the insured is often as fatal as misrepresentation. Now in this want of any certain and specific rule of law applicable to all cases—and, may I not add, in the lax morality of the rule so far as it is laid down?—the conscientious merchant, more perhaps than any other man of business, is called upon to consult the higher law written by conscience upon the heart. And when, in addition to this, we consider how inevitable it is that merchants, who never saw each other, perhaps never heard of each other, and residing at the antipodes, should nevertheless repose the same confidence in each other as if they lived on the same street. And when we further consider that the first requisite for that credit, which is so much used in commerce, is integrity—may we not say that a dishonest merchant is the basest of all dishonest men, because he adds folly to knavery? But without dwelling longer upon the high morality so indispensable for the merchant, let me advert to some of the evils which prevail in our commercial system.

Of these evils, the greatest, and that towards which all the lesser ones contribute, is instability, fluctuation, uncertainty. It has been said by close observers that, in this country, nine merchants out of every ten fail, in the course of their lives. I know not whether this be strictly true. It is enough for my purpose to know, that failures are far more frequent among merchants than among any other class of business men; and that every few years there occurs a general crisis, or revulsion, sometimes confined to one country only, and sometimes embracing the whole commercial world, in which bankruptcies become the order of the day. Those who seemed rolling in wealth are suddenly reduced to beggary—the breaking of one house drags down another, though perhaps oceans intervene. He who

could borrow his millions yesterday, cannot get credit for a coat to-day. Banks break because their debtors are broken—even the day laborer has not wherewithal to pay for his food, because that which he took as money has become worthless on his hands—in a word, the vast fabric of commerce is overthrown, and all is chaos and confusion. Anon, a new race of merchants appear. The darkness which brooded over the face of the deep is gradually dispersed—business finds or makes for itself new channels as before—capital increases—credit expands—there seems no end to the swelling prosperity. Every body can increase his expenses, because his books show that his profits are increased. The last revulsion is forgotten in these halcyon times—the warnings of experience are unheard in the general rush of business—fortunes are made in a day—nothing is required but courage and luck. Surely these are glorious times! Yes—but wait till to-morrow. The bubble has burst. There is another crisis—another revulsion—another deluge of bankruptcy—and so on, almost periodically.

Let us explore some of the causes of this great evil of instability:

One of the most prominent causes, especially in this on-rushing country of ours, is, a prevailing eagerness for rapid gains. Our young merchants have not patience to begin at the bottom of the ladder and ascend regularly to the top. They must go up by a few rapid leaps. Instead of beginning in a small way, and enlarging their business gradually—themselves growing up with it—they dash at once into a large business, before they are fitted for it. I speak not now with respect to capital; for, if they had ever so much, this is not the way to begin, but the way to close a commercial career. The great want is capacity to manage a large business at the outset, which never can be acquired by a mere apprenticeship. It must be the work of actual experience at the head of business, and not in any subordinate position. Take two young men of equal means in every respect, mental and otherwise. Let one begin moderately and extend his operations gradually, say for twenty years. Let the other begin with a business as large as that to which that of the first has grown in this space of time. And at the end, which is likely to be in the best position? I think all experience will answer, the former. In fact the probabilities are a hundred to one, that the latter will be a broken merchant before half the period has elapsed—while the former, feeling his way at every step—never venturing beyond his depth—growing in capacity with the growth of business—and thus, always equal to what he undertakes, will, in all probability, by that time, have become an established merchant, in the best sense of that phrase. It was a favorite maxim of one of the wisest of the ancients to *hasten slowly;* and in nothing is the wisdom of this maxim more evinced, than in mercantile pursuits. I have not resided in this city quite twenty years, but I invite those who have resided here so long, to run their minds back over the commercial history of this city for that period, in confirmation of what I have just said. My memory does not furnish a solitary exception to the rule I have laid down. Those who have plunged recklessly at the start

into a heavy and dashing business, have all failed. Shooting up like mushrooms, like them they have disappeared. While those who have pursued the other course, are now at the head of the commerce of the city; if, indeed, they have not already retired from business upon ample fortunes.

Another cause is, the too great prevalence of the *speculating* spirit. All legitimate commerce is a matter of *calculation*, not of *speculation*. In using this term, *speculating*, as descriptive of a spirit which I would condemn, I have taken the mildest word I could think of. The proper word, if it did not sound so harshly, would be *gambling*—for the thing is gambling, both in spirit, motive, and result. It proceeds upon chance, and not calculation. The chance of a rapid rise, inducing to buy largely, or the chance of a rapid decline, inducing to sell largely. It seeks, by buying for less or selling for more than a thing is worth, to realize more than the ordinary profits—and that, too, upon hazards as uncertain and incalculable, as the turn of a card. This, I repeat, is gambling; and the results upon the trading world are most deplorable. I speak not now of the inevitable tendency of such practice to corrupt that fine moral sense, which should be the jewel of every merchant—for this is too palpable to need enforcement. But I speak of its inevitable tendency to produce those sudden and frequent revulsions in business, which, like earthquakes, shake the commercial world to its very centre. What cause but this could have produced the late frightful financial crisis in England? Speculating in breadstuffs—betting upon the potato-rot—gambling upon the greater or less ravages of famine, and buying at any price—grasping at all that could be got—stretching credit to its last tension for that purpose, and then holding on in hopes of still higher prices from still greater scarcity, until the benevolence of foreigners co-operating with the bounty of Providence in the promise of a better harvest, at once struck down prices, and with them speculators, in one tremendous crash! And this is but a picture of what we see going on among us—on a smaller scale to be sure—almost every year. Take our own provision business, for the last fifteen years, as an example, and what has it been but gambling? If some splendid fortunes have been made, by stopping at the right time, how many more have been lost? Nor does the mischief stop with the speculators themselves. It thwarts all the fair calculations of the prudent merchant—or rather it makes calculation impossible. The prudent man must either lie still—which of itself may be ruinous—or join in the game which is playing around him, and thus trust all to chance, which may be equally ruinous. But I may be told that all this is inevitable—that commerce is, in its very nature, a hazard—that every merchant, however prudent, stands upon a mine which may, at any time, explode. I admit that some hazard must attend the most cautious commercial enterprises, but not to the extent here claimed. A particular adventure predicated upon the best calculations which foresight can make, may prove unfortunate, and loss ensue. But to a prudent merchant, loss is never ruin; while to the rash adventurer, it almost always is. The one never puts all

at risk on any enterprise however promising. The other does, however desperate. The one simply loses—the other breaks.

Still another and very fruitful cause of disaster is found in the use made of credit. I think it is used too much, and in objectionable forms. A word or two on each of these heads.

First, I think credit is used too much. That credit must always form an important element in commerce, I cannot question. That it often constitutes the best part of a young merchant's capital, I am aware; and it is most honorable to him that it should be so. Perhaps no higher evidence is practically given of confidence among men, than that which trusts another upon his character alone. But just in proportion as such credit is a precious thing, should it be cautiously used and carefully guarded—let it be confined to cases known to be meritorious, and it is a substantial good. But let it be given indiscriminately, as part of a general system, and it becomes an immense evil. It not only takes away the strongest incentive to deserve credit, by confounding the worthy with the unworthy, but it keeps the whole commercial edifice in a tottering condition, liable at any moment to fall, and involve alike the rotten and the sound, in one common catastrophe. And is it not true, at least in this country, that the general system of dealing is on credit, so that dealing for cash forms only a rare exception? Are not goods usually imported on credit, wholesaled on credit, retailed and sub-retailed even to the dime's worth booked by the country trader? And does not this indiscriminate and reckless use of credit make us lose sight of the fact, that the only true foundations of credit are integrity and prudence? I hardly call that credit, which is predicated upon known means, or secured by a sufficient mortgage; but that only which is based upon a careful scrutiny into character. Such credit is the glory of commercial life, as it should be the gaol of a merchant's ambition; and none other should be asked or given.

In the second place, mercantile credit has assumed a form which is often fraught with evil consequences. I refer to the use of what is called *accommodation paper*. One man endorses for another, and he for a third, and so on, until the whole trading community becomes thus tied together, in such a manner, that any disaster to one rarely fails to bring others down with him. But this is not the only evil. Many a man thus obtains credit, who does not deserve it for his own sake. It is enough that he can get a good endorser; and what is the consequence if the principal debtor fail? This is a *confidential* debt, which must be preferred, if the law will permit. Commercial honor, so called, requires this preference; and thus the unlucky creditor who has trusted without such endorsement, must get nothing, because the confidential debts swallow up all. And how is it with the endorser? The law says he is as much bound as if the debt were his own. But he does not feel so. He will escape if he can, more especially if he have debts of his own to pay. These he will pay first, and then, perchance, there will be nothing left. I hope I over state this evil; but my professional experience tells me, that

the moral effect of this system of accommodation endorsements is every way bad—on the principal, the endorser, the creditor, and the community—too often resulting in severed friendships, broken faith, fraudulent preferences, and widespread disasters. I may be told, however, that the banks, which are the great reservoirs of credit, will only lend upon this kind of security. Then I say the banks act unwisely. It cannot be their permanent interest to do business upon a vicious system. Had I time, it would be easy to demonstrate, that the practice of discounting accommodation paper is always dangerous to the bank itself. Indeed, there is little doubt, that the last financial crisis in this country, involving as it did nearly all the banks, and many of them in total ruin, is to be ascribed more to the enormous amount of accommodation loans, than to all other causes put together. Had they confined their discounts to business paper only—by which I mean that which is predicated upon real transactions—the amount would have been limited to the business actually done, and the crash, when it came, would not have been half as great. But even if the banks could have an interest distinct from that of the community, and could safely and profitably grant accommodation loans, this is no reason why merchants should make use of them, if their tendency be bad. Let them make common cause, and the banks must come to their terms. Let it once become a general rule that credit, when not founded upon a pledge of property, shall be based upon confidence in the individual, and him alone, and the credit system, thus modified will be safer and better for all concerned. In fact, if we analyze the matter, nothing is really gained to the lender, on the score of security, by accommodation endorsements; for these are made only upon the principle of reciprocity. I endorse for you, and you endorse to the same extent for me; and thus each is weakened as much as he is strengthened, and the general security not a whit increased. It may be that I am wrong in laying so much stress upon the mischief of accommodation credit; but I do seriously believe it to be one of the greatest evils in our commercial practice; and therefore I commend the subject to your serious and candid examination.

Still another evil, and I have sometimes thought a growing one, is the want of a sufficiently high regard for the sacredness of promises. We sometimes hear it said of a man, as the highest compliment which can be paid to his integrity, that his word is as good as his bond—meaning thereby, that he will keep a promise simply because it is a promise. And this is precisely my idea of an honorable merchant. I cannot conceive of such a man breaking a promise which he has the power to keep, whatever it may cost him; and in so acting, his sense of honor is but another name for the sense of moral obligation. Such a man does not ask whether the law will compel him, for he is a law unto himself. Nay, he would be the more scrupulous from the fact that there was no legal compulsion. Yet how many are there, in the mercantile community—as honorable, I trust, as any in the land—who practice upon this high standard? Let me apply the test by asking some other questions. How many of our merchants are in the habit of

making pecuniary promises, which they do not expect strictly to keep? How many think it a sufficient reason for not complying with such promises, that it is simply inconvenient at that time? How many of them will suffer their notes to be sued upon, and instruct their attorneys to procure all the delay they can, merely because the use of the money is worth more to them than the interest and costs? How many will refuse altogether to pay a debt, however clear the moral obligagation, when assured that a legal defence can be made? and more especially when the promise is to pay the debt of another? How many would hesitate to avail themselves of the statute of limitations, even when the indulgence granted by delay to sue, had been the result of simple kindness—and, finally, how many are there, who being discharged from their debts by a bankrupt law, would voluntarily come forward and pay them, when they should subsequently become able? Why this latter phenomenon is so rare, that when an instance occurs of a discharged bankrupt paying his debts, it is bruited as a miracle of honor through all the newspapers in the land; and ten to one his creditors present him a service of plate for an act of simple honesty! For I take it to be clear that there can be no honest excuse for not paying a debt, and punctually too, except that of absolute inability; and that excuse ceases, the moment ability returns.

As I am speaking before an association of young merchants, may I so far claim the privilege of a mentor, as to conclude this discourse with a few words of advice?

Set out then with the belief that knowledge is capital, and by all the means in your power strive to inform yourselves of whatever concerns the functions of a merchant. In the discharge of the duties of your noble profession, never forget that the most unswerving integrity is demanded of you, not only by the common obligations of morality, but the truest considerations of self-interest. Be not eager for rapid gains, but hasten slowly and therefore surely—keep down the spirit of speculation, though all around you run mad with it, remembering that the chances are a hundred to one of its leading you to ruin. Look upon an unquestioned credit as the most precious of acquisitions—remember that its only true foundations are integrity and prudence—use but do not abuse it. When once acquired, make any pecuniary sacrifice to keep it unsullied. Avoid the entanglements of accommodation endorsements as far as you can; but if you once make such, consider the debt as equally binding with your own. Finally, consider every promise you make as sacred as if it were a vow upon the altar; and however the law may regard it, make it good at any sacrifice, for the sake of a merchant's honor. Keep these counsels, and you will avoid those numerous shoals and quicksands whereby so many merchants suffer shipwreck—and if it be not your lot "to lay up gold as dust, and the gold of Ophir as the stones of the brook," you will certainly acquire a treasure by the side of which gold is but dross—the character of an upright and honorable merchant.

ART. III.—MODERN LITERATURE.

BY J. ORMROD, OF MISSOURI.

Gentlemen:—I was agreeably surprised, a few weeks ago, by the presentation of the three first numbers of your periodical—the WESTERN JOURNAL—having previously seen no announcement of its existence.

I have been much pleased with the contents, which evince on your part care and diligence, and manifest a comprehensive intelligence in regard to the best means for promoting, permanently, the interests of the west—and especially those of our own State, the natural resources of which, when fully developed, cannot fail to advance it to a high rank and importance in the confederacy. Amidst the lamentable dearth which prevails in our home literature of any really nourishing food for the mind, how much more grateful is it to a lover of his species, and one who has a healthful appetite, to be thus greeted with something solid and wholesome, than to have tendered to him some newly concocted political or literary weekly sheet, of high sounding title but vapid contents; nor can I except from the category our fashionable monthlies, *et id genus omne*, with their meagre bills of fare and thin potations

We live, indeed, in a literary era—a period of advancement when literature and useful knowledge are immeasurably more widely diffused among the masses, than was the case in any former age of the world; but while literature is thus diffused, and still diffusing, is it not also being diluted? And while increasing in quantity, is it not in an equal ratio degenerating in quality? This is an enquiry befitting us to make, that we be not too heedlessly carried away with the current.

The public taste, it is to be feared, is becoming frivolous, if not morbid; it has become diverted from the more wholesome and instructive works that are extant, to seek for entertainment in the light unedifying—to say no worse of it—periodical literature of the times, with which we are so profusely supplied, and in which the great body of readers now find their chief gratification. The literary caterers for the public are responsible for this, as well as the resulting consequences. The writers of the day, and among them those of whom we might hope better things, instead of seeking to elevate the public sentiment, improve the tastes, and instruct the minds and morals of their readers, too generally descend from their station, desecrate their calling, and lower themselves to the standard of the multitude. Imbued often with the sacred spirit of genius, but with unhallowed imaginations, they mistake their mission—they flatter, they pander to base passions, and administer to appetites already too much depraved, until the public taste, growing by what it feeds on, becomes more and more vitiated.

Our imaginative literature, now so abundant and so much sought after, although it may in some respects be superior to that of the last age, and is certainly more attractive, has yet, in the present day, taken a downward tendency in its flight.

Book making, both in this country and in Europe, has become too much of a craft, and authorship a trade—quantity is a greater consideration, both with the writer and the public, than is at all desirable, for it takes precedence of quality.

The inquiry is regarding the sale of any proposed publication, rather than its usefulness or desirableness in other respects. We no longer, as in times that are by-gone, see authors giving themselves up with absorbing devotion to their subject, with their entire thoughts wrapt in deep earnestness, and seeking with ardent impulse and benevolent purpose to enlighten and elevate their species. They have partaken of the leaven of the times, and genius has become contaminated with a wordly spirit.

With ignoble and sordid aims, they now supplicate Mammon, and make propitiatory offerings to the fitful and ever changing humors which dispense popular awards. They must make fortunes, gaily sport among the fashionable crowd, and become lions, forsooth! Is it for them to do these things, I would ask—to leave their empyrean and mix with the baser and earth-born spirits of the every day world, contending for the privileges of life?

What have they to do with fashionable vanities such as these, or why should they concern themselves with such sublunary fooleries? Theirs is the nobler task of purifying the worldly mind, and correcting, so far as may be, the grosser tendencies of the age. If they are seeking a reward for their labors, let them look for it in the inmost recesses of their own thoughts, and if those labors are such as to be worthy their genius, there, most assuredly, they will find it.

Modern authors, with some few exceptions, are thus prone to write to please the many, rather than the discriminating few. They are induced, many of them, by the venality I am deploring, to cater for the gratification of every depraved taste, and hence the "*Jack Shepherds*," and, if the demand should come, the "*Dusty Bobs*," and "*Black Salls*" in abundance, to be undertaken by some of the most accomplished literary men of the day.

It is for the reading public to look to this matter, and to correct the downward tendencies and literary degeneracy of the age, or literature which has elevated, may again depress us. But glory be to our old writers! such a catastrophe, should it overtake us, could only be of temporary duration, for were everything else to fail us, we should find in their pages—in our standard literature—a redeeming and restorative power.

The *demand* for inferior and demoralizing literature produces the *supply*, but would our writers of talent and genius better employ their gifts by directing their aims to higher objects—those of elevating the tastes and stimulating the faculties of their readers to healthful exercise, and, with a due share of moral courage, always give us something truly worthy their labors—whether employed upon fiction or that which is more directly instructive—the *supply* thus furnished would not fail to create the *demand*. The demand might come more slowly, perhaps, but the ratio of its increase would certainly be greater and more lasting.

In what other way than this, I may be permitted to ask, can we expect any benefits to accrue from literature—from what may be termed elegant literature at least—to the people at large, in forming their minds and morals, and moulding their tastes? For, however favorably organized by nature, the rising generation, at least, are ever subject to the influences around them, be those influences for good or for evil; their literary tastes and associations are mostly decided by what is presented to them in books and periodicals, and they are capable of much better things, and better guidance than they usually get for their minds from the common-place fugitive productions of the age.

It is the province of the more highly gifted natures to direct the destinies of mankind; and those writers who have the power, and seek not to raise the aspirations of the many—to attract them from pursuits which are low and grovelling to such only as are worthy their rational natures, are unmindful of their sacred trust, and injure their own fame; for, unless literary labors are so conducted as to produce this effect in a lasting and unequivocal manner, they must always and necessarily be somewhat barren performances, whatever, in other respects, may be their pretensions.

Great men—great geniuses—constitute the world's treasure: they are the lights of mankind, and to them we must look up as to guiding stars, to direct us on our way to that higher destiny which it is said awaits us in our farther advances and attainment to ultimate civilization: if not to them, which way shall we turn our eyes or whither direct our steps?

With loftier aims than the mere winning of popular favor, or than any which the love of pecuniary gain or fashionable notoriety can supply—such aims as the pure feelings of philanthropy can alone inspire—our most talented writers, the Bulwers of the day, would have devoted their geniuses, and dedicated their labors to the services of mankind; in seeking to enlighten and elevate their species by producing works of no doubtful tendency. They would have given us pure gold unalloyed with the baser metals, and refined by the subtle process of their genius; and not as now, have placed before us images in which brass, iron, and clay are mixed up with the precious metals which we find there interlaid, with the skill of a workman indeed, but which we cannot extract, or look upon without pain and contamination.

And let the truth be impressed upon the minds of all who, by intellectual labors are seeking for fame or distinction, that moral deficiencies or moral deformities in regard to what they accomplish, will ever be found to interpose an insuperable bar to the attainment of any great eminence or enviable notoriety in pursuits of every kind. And the writer, statesman, or other distinguished actor on the world's great theatre, who has those deficiences to contend with, however mighty and transcendent his powers of intellect, will fail in his object, with whatever ardent aspirations he may pant for renown.

He will never reach that high pinnacle of just fame, on which the great bene-

factors of mankind take their permanent station—the Shakspeares, the Miltons, the Washingtons, the Franklins, and LaFayettes of past times. No adamantine column will rise up a pedestal for his feet to stand on. Buoyed up and sustained for the time by the fickle breath of popular applause only, he must be content to take his station in mid air; and when the changing breeze with the changing mood that gave it being, takes another direction, he falls without other support, prostrate down to earth, never to rise again.

This is not a picture merely sketched to please the fancy, but a true type in figurative language—fanciful though it may be—of the many signal instances we have had before us, which might serve to illustrate the truth I contend for. I might here recount many examples, were such proof needed, for establishing my position, not of literary men only, but men of pre-eminent talents, moving and seeking distinction in other spheres of life—legislators, statesmen, and politicians of almost every class; and some of these in our own country and before our eyes in the present day.

Men they were in high stations, who had raised themselves by their great talents to an enviable distinction; and while they were thought pure, were honored with the name of patriots; but they have fallen—their hour of trial came, and they were found wanting in one of the prime elements of greatness—honesty of purpose.

These may be said to be deficient in knowledge of mankind, in *tact*, or what not, but we can best account for their failure, by referring it to a deficiency in honesty, in purity of motive, and singleness of heart—without which requisites, and with the gifts of angels, they can never become enthroned in the hearts of their countrymen. "Without moral worth," as well observed by a writer of the day, "acuteness of intellect, is but a snare to its possessor."

Entertaining the above sentiments, I therefore cannot fail to be gratified at the auspicious appearance of the WESTERN JOURNAL, and I greet your undertaking accordingly with a hearty God speed, trusting that you will neither fail nor falter in the good work you have set yourselves to do, but steadily and perseveringly prosecute your objects, and your labors cannot fail to be appreciated, and to result in good. I trust that you will continue as you have begun, to be the strenuous and enlightened advocates of the true interests of the west, not only those interests which are *material*—agricultural, commercial, manufacturing, &c.—but that you will also not lose sight of those higher interests which relate to mind and morals, but do what in you lies to promote them by an endeavor to stimulate your readers to the cultivation of their faculties, without which our prosperity and physical advancement, however considerable, can avail us but little.

Our present civilization, it must be remembered, is but half progress, and boast as we will, even of our intellectual development, if it be merely civilization of the head we have achieved, but which penetrates not the heart, it will be a bootless acquisition.

If you can sympathize with me in the sentiments and opinions I advance, you will then readily assent to the proposition that there are other and still more important interests which it behooves you to urge upon your readers, besides those which relate exclusively to our material being; interests in which the happiness of the people of the west, as well as that of all others, is deeply involved.

I am glad to find, therefore, that although the greatest number of your pages are filled with matter of purely secular interest, you have apparently left a niche in your journal to be filled with something of a different nature.

I live in a retired situation, and in partial seclusion, a state favorable to thought and reflection, and would employ the little leisure I have at command, in some way that may tend to the good of my species, while it may afford me a sufficient solace and entertainment. I would fain, in short, contribute something, as much as in me lies, which may in some small degree advance the cause you have espoused—something tending to real progress in the west, and especially in Missouri, my adopted State. If I have the ability to do this, and may be admitted at all as a colaborator in the work, so as to occupy a space in your Journal, it must be in some way that is suited to my mental pursuits, and on subjects congenial to my habits of thought.

I can collect no statistics that will be of value to you or your readers. My attainments in natural science are but slender; and having little skill in Geology or any of the details of Mineralogy, I cannot pretend to enlighten your readers in what relates to natural formations, or descant on the fossil remains of an extinct generation. I am equally innocent of the methods of exploration for, and the discovery and reduction of mineral ores, as of all the Vulcanian operations of the forge and bellows. With the *Spinning Jenny* I am unacquainted, and can only conceive of it from the import of its name, as being something of the feminine gender which is concerned in spinning a thread—a sort of modern *Lachesis*. I am but little conversant with commerce or commercial affairs, nor have internal improvements occupied my attention, except in so far as relates to my own inner man. I can thus far more easily inform you as to what I cannot than what I can do.

I have been rather a thinker than an observer, and my thoughts have been employed more upon speculative subjects than upon the actualities of this visible and diurnal sphere; having concerned myself more with truths that are called contingent than with such as belong to the exact sciences.

My study—admitting Pope as sufficient authority—has been of the proper kind,* for I have endeavored with much pains-taking diligence to comprehend 'man,' although I am by no means sure that I have as yet attained to a perfect knowledge of my subject. I make some pretensions to psychological and ethical science, and have bestowed some thought on the subject of education; general

*"The proper study of mankind is man."

literature also, which I see included in your catalogue of subjects (a convenient generalization,) has engaged a large share of my attention.

And now, gentlemen, if such work as I can do, and which I leave you to judge of from this expose, is likely to suit you, and I may be admitted to the rank of a contributor to your journal, you may count on me as an occasional coadjutor.

Whatever my deficiencies may be I shall not be wanting in good will. I have the gift of perseverance, and can boast of some energy, and I will do my best. Laborers are needed for the work, and in such a cause, a writer should strip to the buff, set about his task in sturdy earnestness, and lay on as with a heavy maul when there is strong work to do. I like to give a free utterance to my thoughts, little regardful of conventional forms of expression; and whether in writing or speaking, restraints are irksome to me, and in this respect, therefore, I shall claim for myself some indulgence. Candor, however, requires me to say that I am in the habit of maintaining sentiments and opinions that are somewhat heretical, or such, at least, as the world regards as being odd and unorthodox. I hold, for example, that man was not designed by the great artificer of the universe to be an earth-worm, or mere money grubbing animal; that his physical should be held subordinate to his intellectual wants; that it behooves him, therefore, to regard those objects and pursuits which men generally are accustomed to cherish as *primary* and all important—such as the acquisition of property, influence, honors, and the emoluments of place and power, and even his proper business and avocation in life—in the light of *secondary* objects only; that what are commonly regarded as secondary pursuits, and of minor importance —such as the improvement of the mind and morals, and the cultivation of the charities and the amenities of social life—he should accustom himself to esteem as primary, and make their pursuit accordingly, the chief business of his life. On the subject of education I entertain views too, such as few of your readers, I apprehend will sympathize with.

The discipline observed in our primary or common schools, I look upon as being too mechanical; words and not things are taught. This would be less objectionable if *ideas* were always annexed to the words, but unfortunately this is but seldom the case; books are too much used, and oral instruction too little resorted to by our teachers. I contend, also, that our youth should not only be made acquainted with the usual branches of learning taught in schools, but that they should be practically trained in a variety of other useful knowledge, and that *work* should be regarded as an essential part of the education of both male and female. As for the higher institutions of learning, our colleges, &c., instead of regulating the studies and exercises of the young men sent there, in accordance with the prevailing notion and on the principle of qualifying them for the world and enabling them to gain worldly distinctions, I would have them disciplined in studies and exercises altogether *unworldly*, that when they go out into society they may be qualified for a higher task, that of diverting men's minds from mere

worldly distinctions and honors, and directing them to objects more worthy of a rational nature. With these observations, sufficiently desultory, and, as your readers may think, somewhat extravagant, I will, at present content myself.

ART. IV.—THE RISE, PROGRESS AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

If through the long vista of vanished ages, we turn the mind's eye back to the days of the world's infancy, and contemplate the gradual development of the human intellect, what a broad field do we find for the exercise of our reflective faculties!

Resplendent in all the finished symmetry of matchless form, we see man, as he came from the hand of his Creator, an unlimited sovereign, whose empire embraced all earth—exercising those powers delegated to him by the Most High, and receiving the willing homage of an infinite creation. All that he could desire, smiled in rich luxuriance around him; the fruits of the earth—like himself—flourished in full maturity; wheresoever he turned, a banquet was ready prepared to his hand by day, and the flower enamelled earth, redolent of the most delicious perfumes, presented him with a couch by night; whilst the moon, in her silvery majesty, beamed calmly on his child-like sleep, and the gentle winds of Heaven, as they fanned his glowing cheeks, or played with his tresses, murmured a sweet lullaby round the infant cradle of the father of the human race. His was undivided sway. The Omnipotent breathed into his nostrils the breath of life; endowed him with thought, reflection, invention, command; and created a little lower than angels, made him all but a God. In a happy state of innocence, he reigned in Paradise—a mighty potentate, receiving the willing homage of all created beings; and the reverence with which its inhabitants obeyed *him*, shewed *their* admiration of Him who said:

"Let us make man in our image, after our likeness; and let him have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth."

"So God created man in his own image. Noble in reason, infinite in faculties, in form and moving express and admirable! in action like an angel! in apprehension like a God! the beauty of the world, the paragon of animals."

Whilst in this blissful state, man knew no wants, until, lured by the tempter,

> "He eat of that forbidden fruit, whose taste
> Brought death into the world, and all our woe."

Finding himself—alas! too late—shorn of a great part of his strength, no longer loved, but feared by the inferior portion of creation, and fully awakened to a

sense of the awful curse of disobedience—he, who had basked in the approving smile of Heaven, and roamed in fearless grandeur throughout his vast domain, trembled before his late obedient, but now rebellious subjects. The dread doom reverberating to the utmost bounds of the universe, drove him to the gloomiest shades of forest solitude, in the vain hope of hiding himself from the sight of Him who fills all space.

Aware of the penalty of his disobedience, he sought protection from the attacks of those whose fierce passions had been awakened by *his* transgression; and retiring to caverns, or recesses of the rocks, found a home and a fortress from their malignity. Although these may have afforded comparative safety, his growing wants springing from his altered position in life, aroused within him his hitherto latent energies, and brought the inventive faculties into activity.

His first effort resulted in the construction of a conical hut, rudely composed of a few branches of trees, their ends resting on the ground, and their tops secured with such cords as nature presented, over which was thrown a covering of bark, or leaves to shelter him from the bright rays of the mid-day sun, and the rains and dews of night. His mind, now roused to activity, soon devised means of erecting a more substantial and commodious hut. Placing in the earth trunks of trees, cut to a convenient length, in an upright position, forming a square, over which others were laid horizontally for a roof, he provided himself at once with a domicile, and a fortification, in which he dwelt in comparative ease and security, and in a measure bid defiance to danger.

Thus, then, we find architecture almost coeval with man's existence, springing from necessity, and rising in importance with the increase of the human family.

The early children of men, surrounded by flocks and herds, in which their whole wealth consisted, led a pastoral life, divided into families and tribes, to whose patriarchal chiefs or heads, they submitted as children to parents.

It is probable at the commencement of this stage of society, from the paucity of their number, that peace and harmony dwelt among them; but in the progress of time, as they grew to multitudes, all the worst passions of their nature burst forth as their jarring interests came in contact—strife, foray, and battle became daily occurrences; with them *might* was *right*, and the strong trampled upon the weak. He whom each tribe acknowledged as its chief, felt the weight of government increase with the growth of his people; and anxious for their safety and welfare, added improvements to the original log hut. Bastions and towers arose from the exigencies of the times, until at length military architecture engrossed his attention and became an art of the first importance.

Finding the arms which nature had provided insufficient in their various melee, recourse was had to artificial weapons; and in the invention of these, man's constructive powers were called into play. War and the chase became mere pastime —an every day employment; military distinction, and a thirst for fame, reigned paramount in the human breast; spears, swords, helmets, shields, and other armor

were fabricated to suit the growing wants of the belligerents; each day's experience quickened invention; improvement followed improvement, until at last the warrior stood forth encased in a coat of mail, whose brazen plates turned aside the winged arrow, and made the long spear stop in its deadly course.

Experience, that sure test of genius, laid open his innate powers; each day's revolution drew forth his slumbering faculties; and Time, as he winged his onward course, ripened and matured all his endowments.

Having occupied a conspicuous position during life, his self love led him to seek a place of distinction even after death; thence *caves, tumuli,* tombs, mausoleums, and pyramids, developed his taste, and threw around his last cold bed a shadowy remembrance of his past glory.

Instinctively aware of his divine origin, and anxious to testify a sense of gratitude for his creation and preservation, man pictured to himself some immaterial being to whose beneficence he was indebted for existence; but as the human intellect was still shrouded in the mantle of gloom and obscurity, his first conceptions of a divinity led him to adopt rude pillars of stone as representations of that celestial being, whose all-pervading presence and influence is felt and acknowledged by every inhabitant of the universe. Or probably viewing the heavenly bodies, bright and sparkling as they moved throughout the firmament, they were the first objects which nature and reason taught him to reverence, or, it may be, that raising his thoughts to a more conspicuous object, he looked upon the sun, and paid him divine honors as the great creator and comforter of the whole earth.

This, when we come to consider the infant mind of man, was no unreasonable idolatry;—it sprang from a knowledge of the powers of that magnificent orb, and of the benefits derived from his vivifying rays. To him, therefore, were erected magnificent temples, "and towering obelisks reared their sculptured heads far up into his resplendent dominions, around whose base, millions of pagan worshippers bowed with reverential awe."*

Man, the master work of all creation, whose commanding form, instinct with the divinity, impressed all other beings with a sense of awe and reverence, naturally conceived himself the image of his Maker, and the being he would adore. Therefore, he formed an image of himself, as the most appropriate symbol through which to offer up worship to the grand first cause. Thence, we may suppose, arose the sculpture of the human form. But, having given sufficient scope to the imagination to revel amid the fields of unrecorded time, let us now look upon the page of history, and see if we cannot find data whereon to fix our observations. And to this end must we turn to Egypt, that vast sepulchre of extinct learning, science and wisdom, for information; some of whose mighty works of art, proudly tower aloft, and still bid defiance to the devouring hand of time—imperishable records of superior intellect, in days long since faded into the dim and shadowy past.

*Lossing.

The land of the Pharaohs, in many respects, is the most interesting on the face of the earth; for, to it can the scholar, the antiquarian, and philosopher direct his researches, and from its inexhaustible fields reap rich harvests of literature, science and art. And as it has been, and still is, regarded as the cradle of science, as well as the first seat of regular government, we are accustomed to ascribe the rudiments of our arts and literature, to the singularly ingenious people who occupied the banks of the Nile, at a period long prior to the records of civil history. Hence, the historian takes that country as the starting point in the pursuit of every object of a moral or intellectual nature.

The wonderful magnitude and durability of her public works, which were executed by her ancient inhabitants, have been the admiration of every writer who has visited Egypt; and her temples, tombs, and obelisks have furnished occupation to many generations of the wise and great, of every civilized nation, on the face of the globe.

"Of this wonderful people," says the Rev. Dr. Russel, "there is nothing more remarkable than that their greatest efforts were made at a time, when, in regard to religious faith, they were in the grossest ignorance and darkness; when light sprang up around them, their taste, or their zeal seemed to decay—yielding to the dominion of barbarian tribes, who were indebted to them for all their knowledge, as well as for their superstition. Persia added nothing to the arts, or architectural improvements of Egypt. The Greeks presumed not to rival their masters in the construction of temples, pyramids, and labyrinths; and the propagation of true religion, under the Roman Emperors, put an end to the lofty imaginations which the subjects of the Pharaohs were wont to realize in their national structures. Christianity, which blesses every land where it is cordially received, contributed most of all to the extinction of that spirit, which had impelled the Egyptians to undertake and carry into effect works so vast and imperishable, as those which still call forth the astonishment of the traveler. The days of their mythology were those of their proudest glory, and we may add, of their greatest happiness and freedom. This blind belief in the divine origin of their monarchs, as also, the inspiring dogma that the soul was to return to the ancient tenement in the flesh, encouraged them to erect monuments which might resist the pressure of ten thousand years, and carry the fame of their authors to the very threshold of eternity. But when the exercise of their primitive superstition was no longer allowed, and another faith was introduced in its place, the temples were gradually abandoned; and the spirit of the Egyptians, subdued by the severest political oppression, yielded at length to a more prevailing power, which directed their hopes and fears to the contemplation of loftier and more spiritual objects."

As the great aim of the Egyptians seems to be durability in all their works of art, we cannot but admire the massive gradeur of their architecture; but the very essentials to the production of the sublime, which we there behold, renders them

less pleasing to the refined and sensitive mind. Terror, gloom and obscurity, being the main requisites, and so absolutely necessary to the successful despotism of a tyrannical hierarchy, it became incumbent to make architecture subservient to their purposes. Hence, we do not feel those gentler emotions on contemplating their stupendous fabrics, which we do on beholding the elegant structures of the more liberal Greeks.

Architecture among this remote people, was, in a measure, confined to one order; and owing to the peculiar nature of their government, it was impossible for its professors to expand the wings of genius—to soar aloft, and try their powers in new and unexplored regions. Not thus did the noble Greeks check the aspirations of their gifted sons. Although deriving their learning and arts from the Egyptians, they enjoyed a boundless scope in every pursuit that could tend to elevate the standard of intellect. No arbitrary fetters shackled the free exercise of thought. Literature and art roamed abroad, untrammeled amid the realms of fancy. No bonded serf dared pollute, even with his footsteps, the hallowed threshold of *nature's aristocracy.* The pen, the pencil, and chisel were wielded by freemen alone, and millions paid homage at the shrine of genius.

In the enlightened land of Greece, under a freer, nobler, and more poetic form of government, architecture attained its utmost perfection. Her artists having a field wherein the taste and fancy could play unfettered, soon found from the very exercise of mental liberty, the true point of excellence. She who had started in the pursuit, ages after Egypt had arrived at her greatest splendor, soon outstript her in the nobler arts. Her hill-tops were crowned with temples, whose exquisite symmetry served as models to futurity. The genius of her sculptors peopled her groves with gods, and heroes. Her valleys responded to the eloquence of her orators; and music and poetry floated on the breath of Heaven, in unison with the melody of nature—giving to her a splendor of renown, hallowed and undying. The influence of her arts were felt and appreciated. Her warriors were brave; her statesmen wise; her philosophers profound; and her orators eloquent in an eminent degree. As a people, they were polished and refined; for her arts threw a charm o'er the land, "giving to man a higher perfection—tuning his spirit softer and clearer—opening his heart to refined pleasures—and bringing him above all things nearer the good."*

During the age of Pericles the arts attained to a pinnacle of greatness, beyond which, it is thought by many, they cannot rise; and when we reflect for one moment on the prospect of the undying glory that was held out to the successful artist, the grand secret of their excellence is at once solved. Honors, the greatest that could be paid to man, were showered on him who triumphed in the race. Immortality, and a statue among the gods themselves, were the rewards of genius. Is it to be wondered at, then, that excellence crowned all their efforts? No! for there is a motive in true genius, that raises him who possesses it, far above the

*Goethe.

sordid desire of accumulating a horde of yellow ore; there is "*a fond desire, a longing after immortality.*"

Although authors cannot agree as to which should be awarded the meed of pre-eminence—Painting or Sculpture—we are inclined to think that the latter ought to take precedence; for, we find in the Bible, accounts of images even before the flood, and it is likely that the first efforts in the arts would be made in a material to give form, instead of color. The very art would suggest itself to the untutored mind of man, as being capable of conveying a representation more in accordance with his own form, than any production of the pencil on a flat surface.*

When carried to perfection, (as in the days of Pericles,) it admits only of the severe, or grand in its style, and will not be trifled with. From the lofty pinnacle on which it has long since been placed, there is no descent—no bending to the common-place trickeries of the pencil, nor stooping to broad farce in caricature. It is more durable, therefore better calculated to transmit to posterity the achievements of men eminent for feats of arms, knowledge of letters, and profound philosophy.

Like its sisters—Painting and Poetry—Sculpture is indebted to the lofty imaginings of an inspired mind—a mind capable of embodying beings beyond the scope of mortal vision, and, as it were, causing the "sons of God to walk among the children of men." It seizes upon the realities of earth, and hands down to future generations the imperishable records of by-gone years—attests the fame of nations, and gives to the world, at one view, what would have cost the historian whole pages. Religion is its mother, and History its guardian angel.

When nations crumble into dust, and imperial cities lie level with the ground, Sculpture remains, a mute, but eloquent proclaimer of other times, and other men. The traveler, as he journeys along the consecrated shores of the Nile, or treads the hallowed soil of Greece, holds converse with departed ages. The Egyptian pyramids, the ruined temples of Thebes, and the refined productions of the Grecian chisel, speak feelingly to his breast; the very air he breathes is redolent with art; every breeze bears upon its pinions the aspirations of genius; and he holds communion with the mighty spirits of the past. No matter what his native language may be, or what the language of the land over which his footsteps wander, Art speaks intelligibly to him in an universal tongue. The scholar may be better enabled to understand and appreciate its beauties, yet its influence is felt by the unlettered. The civilized and savage are alike alive to its powers, and all nations and people have bowed at the footstool of its majesty.

[TO BE CONTINUED.]

*The Indians of North America make their first efforts in the arts in carving.

ART. V.—FURNACE FOR CONSUMING SMOKE.

MESSRS. EDITORS:—From the rapid progress of St. Louis, it bids fair to outstrip many of the principal cities in the Union, and as its future growth will depend mainly upon the increase of its manufactures, it will become the duty of the city authorities to look to the health of the city, for the benefit of those who reside in it. The inhabitants, composed as they will be, principally of artizans, operatives, and laborers, necessarily confined in close rooms and a vitiated atmosphere, during the hours of labor, should, when liberated from their daily toil, be supplied with a healthy atmosphere, or else our city will become the emporium of disease, in place of energy, genius and skill.

I am of opinion that one of the detrimental effects of a manufacturing city upon the health of its inhabitants, is the volumes of smoke emitted from the furnaces necessary in the various processes of manufacturing. These volumes of smoke impregnate the atmosphere, and render it unfit for the demands of our nature. It is not my design, at present, to say what arbitrary laws the City Council should enact to suppress this nuisance; but I wish to show that it is the interest of the producers of the nuisance to turn it to a useful purpose. Some will ask, how is this to be done? I answer, by burning the smoke—by converting the large volumes of carbon into bright flames, and thus generating from twenty to thirty per centum more heat from the same amount of fuel than is now generated. This economy has many dependencies. It depends partly on the fireman, but mainly on the construction of the furnace. The furnaces should be so constructed as to admit a proper quantity of oxygen to combine with the carbon, so as to produce combustion. The plan of furnace that appears to have met this desideratum most successfully, is that of C. Y. Williams, styled the Argand Furnace. Its construction is somewhat as follows: Running at right angles (with the length of the boilers,) through the bed of the boilers, is an air chamber two and a half feet wide, and three feet deep; on each end of this air chamber is a sliding door, to regulate the quantity of atmosphere to be used in consuming the smoke; on the top of this air chamber are projecting tubes, running up to, and between the boilers; these tubes are pierced with small holes. This air chamber and the tubes are situated behind the bridge of the furnace When the smoke from the furnace is passing between these projecting tubes, the oxygen of the atmosphere mixes with the volume of carbon, thereby producing combustion. The fact is established, that by this plan, from twenty-five to forty per cent. more heat is obtained from the same amount of fuel, than is obtained from the furnace in common use. This is one plan of furnace for consuming smoke. I will favor your readers with some others in my next, it being my desire to be useful to the world at large. Yours respectfully, M. F. P.

St. Louis, May 7th, 1848.

ART. VI.—SUBSOIL PLOUGHING AND WATER FURROWS.

We are under many obligations to Judge Williams for his interesting communication upon the subject of Subsoil Ploughing and Water Furrows. The Judge is a pioneer of the right stamp—always ahead of others in the country in which he lives. He was a pioneer in manufacturing—next we find him leading the way in agricultural improvements; and last, but to us not less interesting, we have the honor of enrolling his name as the first contributor to the Western Journal upon the subject of Agriculture. We trust that now when the ground has been broken by one of so much experience, others will not be backward in following his example.

Messrs. Editors—I desire through the medium of your valuable journal, to call the attention of my brother farmers to the subject of subsoil ploughing. The subsoil plough has been in use for many years in England, and also in the eastern States; but as far as my knowledge extends, I am the first individual who introduced it west of the Mississippi river.

The advantages of subsoil ploughing may be stated as follows: First, by increasing the depth of pasture for the roots of corn and other plants, they are not only furnished with a more permanent supply of moisture and air, but the valuable properties of the subsoil are made available without being mixed with the vegetable mould, which is left as light and as friable as before. Secondly, by enlarging the capacity of the pasture to hold water, the pulverized soil is prevented from washing off; for it very rarely rains so hastily as to carry off the soil until it is fully saturated with water; and it seldom happens that more rain falls at any one time than will saturate a soil from eighteen to twenty inches in depth. Thirdly, it serves to drain soils that are so constituted as to hold water, and thus enables the farmer to prepare for planting earlier in the season, as well as to work his crop in a shorter time after the heavy rains which usually fall in the spring and early part of summer; and lastly, it enables the crop to stand drought with much less injury; for the roots of corn, especially, will penetrate to the bottom of the pasture, although it should be two feet in depth, and here, it will find sufficient moisture to sustain the plant in the driest seasons which happen in this country. It is needless to say that these, result in the final advantage of a more certain and larger crop. The advantages accruing from subsoil ploughing will doubtless depend somewhat upon the depth of the vegetable mould, and the quality or properties of the subsoil; but I think it may be safely affirmed that every description of soil is benefitted by the process—and that by the application of a little manure, the average crop of St. Louis county would be increased from fifty to one hundred per cent. by the use of the subsoil plough.

I made the pattern for my subsoil plough, had the irons cast, and stocked it myself—it proved to be an excellent model, and works as well as I could desire. My method of using it is as follows: First with a three horse plough I make a

furrow about eight inches deep, turning the ground well, that the soil may not be mixed with the clay—then fallow with the subsoil plough, running below the level of the surface about twenty inches, which makes the entire depth about two feet below the surface when flushed up. The next furrow of the mould-board plough turns upon the furrow made by the subsoil plough, and replaces the soil upon the clay without mixing them together. The subsoil plough requires a team of four or five yoke of oxen it is true, but this is a small matter when we consider the advantages derived from the process; and the labor and cost dwindles to almost nothing, when we further consider that the process does not require to be repeated oftener than once in from ten to fifteen years. Besides, the plough costs but very little, and one would be sufficient to do the work of a whole neighborhood for many years.

I broke twenty acres with this plough last fall, and the ground ploughs very light and fine this spring; it is old ground, without stumps, and broke to the depth above mentioned.

I have also found great benefit in making water furrows in rolling land, or where there are long descents. These are very easily laid off by the use of a level. By running the plow several times in the same furrow, and removing the loose earth with hoes, the work is soon done; and if blue grass seed be sown on the lower side, and a little attention be paid to mending up broken places for the first year, until the grass is well set, the work is complete and becomes a permanent improvement; and if properly projected, is almost a complete protection against the washing of the soil. By means of these improvements, I can put my land in first rate order with the plough and harrow, and there is no danger of my corn being washed up by the rain. When I have planted my crop, which I always do by the first of May, I consider that the work necessary to make it, is half done.

My neighbors thought very little of my subsoil plough or water furrows, when I first introduced the use of them. Some said I was at my old tricks, trying to find out something new, and that the profits of my experiment would be unequal to the labor. Of late, however, some have begun to think better of my speculations, as they were pleased to call my experiments in the beginning.

My farm has been in cultivation about twenty years, and by the use of water furrows, and the application of a little manure, my land is more productive and my crops more certain and abundant now, than when it was first cleared.

To give your readers the best evidence that I sympathise with you in a desire to develop the resources of the west, and to make it as independent of other countries as practicable, I will mention, that about twenty-eight years ago I built a double wool carding machine, in my own shop, and put it in operation for the convenience of the country. About the same time I built and put in operation the first cotton gin that was built in the State; and the year after, I put in operation a cotton spinning factory. This was about the first attempt at spinning cotton

by machinery in Missouri. These works were put in operation at the place where the county seat of Montgomery county is now located.

I am aware that the low price of produce discourages many farmers from improving their soils; such concluding, as it would seem, that there was nothing worth working for except money. This I esteem one of the great errors of the age. Admit that the farmer does not desire to increase the quantity of his crop, yet he can surely have no objection to diminishing the amount of his labor, while at the same time he increases the value of his land. Suppose that by improving his land and its culture, he can produce the same quantity that he now produces with two-thirds of the labor now employed, this would relieve him from labor two days in each week. Hence, he has one-third of his time at his own disposal; this may be appropriated to the culture of the garden and orchard, and while he would thus be enlarging his physical comforts, he would cultivate and improve his taste for *horticulture*, that most refining of all pursuits. Or, if haply he should possess a desire to improve his mind by enlarging his stock of general information, he would have time for this purpose also. Are such important advantages as these to be neglected? Surely not. It is clear that the time thus gained is *wealth;* for what better use could be made of money than to appropriate it to such purposes as I have enumerated? Think of this, brother farmers. Don't be discouraged from improving your lands or your mode of culture, because produce is low; nor because your land is already rich, but gain all the time you can and appropriate this to the embellishment of the home of your affections, and to mental and social improvement. These are the principal objects that are worth laboring for, and their attainment is in your power.

ART. VII.—JERUSALEM ARTICHOKE.

Messrs. Editors—*Gentlemen:*—My attention has been attracted to articles in Fessenden's Gardener of 1832, and also in E. Deming's Farmer's Reporter of 1834, and Skinner's Farmer's Library, No. 7, for 1846, on the culture of the Jerusalem Artichoke. My opinion is, that the proper mode of cultivating that valuable root is yet little known. Many have thought that the best mode of raising them was on the borders of a fence; others have planted them, and then turned in their hogs to perfect the cultivation, and so on, till the artichoke turned out to be a troublesome weed. You will find a specimen of them in the American bottom, of some thousand acres, cultivated in this way, having an abundance of stalk, but a very small quantity of roots.

In France, on the estate of George W. Lafayette, the only place where it was cultivated on a large scale, I observed that the tubers were planted whole, eight inches apart, in furrows only two feet apart, producing in proportion to corn cul-

tivated in this country, on thin soil, four stalks to the hill. The artichoke should never be planted whole, but ought to be cut in many pieces, not allowing more than two eyes or sprouts to the hill, one foot apart, and the furrows three and a half feet apart. If planted in this way, I am confident that they will yield from *two to three thousand bushels to the acre.* By way of experiment, I planted them in this way last year. They yielded me one peck to the hill. Some of these plants were dug in the presence of Capt. Eiler, James Sigerson and Gen. Milburn, all of whom were astonished at the extraordinary production. The artichoke should never be planted successively, on the same field, but should be carefully dug, so as to rid yourself of that troublesome weed, so called, when you allow the hogs to root them out. Corn would be the most suitable for a successive crop. The artichoke should be planted as early as the ground will admit, selecting always the largest for seed. They keep well all winter in the ground; the most intense cold does not affect them, nor are they ever attacked by insects, or disease. I am convinced that when this root is known and properly cultivated, it will take the first rank of all other roots subjected to field culture. By an accurate chemical analysis, it is found to contain one-third more nutriment than the beet. Yours respectfully,

Carondelet Township, May 12th, 1848. D. CARLIN.

ART. VIII.—SHOULD THE LOOM COME TO THE COTTON, OR THE COTTON GO TO THE LOOM?

To the cotton grower this is a question of the highest importance. His future prosperity depends on the correctness of the answer he shall make to it, and we desire, therefore, to offer for his consideration some views that may tend to enable him to answer it understandingly. The enlightened editor of the New Orleans Commercial Bulletin—in the centre of light and interest on the subject—remarks:

"We buy, in New Orleans, negro cotton goods manufactured from one bale of cotton, for about the same sum that we receive for five bales of raw cotton; the other four bales being for the labor and profits, which are divided between the ship owner, Northern or English operatives, mill proprietors, agents, and commission merchants; all of which would be retained at home, for the benefit of our own citizens, had we cotton mills established here."

Having bestowed some reflection on the above statement, we respectfully invite our readers to accompany us in an examination of the *nature of the exchanges* to which it refers.

The number of working hands engaged in the production of cotton may, with some approximation to exactness, and near enough for our purposes, be set down at 800,000, and the average product per hand at 1,000* pounds, giving us the total

*Rather too low an estimate—EDITORS.

product 800,000,000. Each hand, however, is supposed to cultivate about as much land in grain as in cotton. The labor employed in the production of cotton is, therefore, equivalent to that of 400,000 persons, and the product is the equivalent of 2,000 pounds, or five bales to the hand.

A cotton factory containing 250 operatives, only one-fourth of whom are males, will convert 2,000 bales of cotton into cloth. This gives eight bales per hand. Five persons in a mill will, therefore, convert into cloth as much cotton as eight will produce; and of these five, three-fourths are females quite too young and feeble for efficient field labor. A fair estimate of the quantity of power needed for manufacturing and producing, would give to the work of production more than twice as much as is required for that of conversion or manufacture; but we will assume that five persons are required for the manufacture of that which is produced by eight.

The labor of production is as valuable as that of conversion, and a just distribution of the proceeds, would give to the planter eight parts out of thirteen, leaving the remaining five for the persons employed in converting the cotton into cloth. We see, however, that the planter gives five bales for one, or a hundred for twenty; whereas, if the distribution were in the just ratio of the labor employed, the planter should have sixty, and the manufacturer forty.

This is, we believe, less than a true and just distribution would give to the planter; but to avoid the possibility of error, we will assume that the product should be equally divided between the producer of the cotton and the parties by whom it is converted into cloth. Two bales of raw cotton should then pay for one bale when manufactured; yet here we see, on the authority of the editor of the New Orleans Commercial Bulletin, that the planter has to give five for one. What, then, becomes of his remaining three? Assuredly no planter should rest satisfied until he can answer this question, to the end that as far as practicable, he should escape from so heavy a tax. To answer the question, let us endeavor to trace the course of operation to which the five bales of cotton are subjected from the time of leaving the plantation until they are returned in the shape of one bale converted into cloth. First, we have the transportation to the place of shipment, in which a part is swallowed up.* Next comes the commission to agents in New Orleans or Charleston. After this comes transportation to England, or to New York or Boston on its way to Lowell or Manchester. Next, commissions in New York, Boston, Liverpool and Manchester. Next comes wages to operatives and profits to master manufacturers. Following this, we have transportation from Lowell or Manchester, and thence to New Orleans, with an endless

*Of the expense of this first movement, some idea may be formed by those who have seen it coming over dreadful roads, up to the hut, dragged slowly along, twenty, thirty or forty miles, as we have seen it coming into Natchez and Vicksburg, hauled by five yoke of oxen carrying 2,700 to 3,000 pounds, and so slowly that motion was scarcely perceptible. So many perish in the yoke in winter and spring, that it has been said, with some exaggeration, that you might walk on dead oxen from Jackson to Vicksburg. That was before the railroad was made. A wagon is loaded up, say fourteen miles from Natchez, and started at night, and reaches there in time to get back the next night time enough to "load up." Thus ten oxen have been wearing and tearing, and dropping their manure on the road for twenty-four hours to make one load.

train of charges and commissions, the result of all which is, that the planter gets back *one* bale for five, when he should have, by just distribution of profits in proportion to labor, *almost three*. He gives five for one instead of two for one, (the real naked difference between producing and converting, making a most liberal allowance for the latter,) and the other three are irrecoverably lost to him.

Let us now inquire of what all the charges consist, and we shall find that they resolve themselves almost altogether into the single article of *food*, the only others being a small amount of clothing and lodging. The cart and the wagon are composed chiefly of the food eaten by the men who made them. The road by which they travel in conveying the cotton to the place of shipment, is composed of, or chiefly based upon, the food of the men who made it. The steamboats by which it is conveyed to New Orleans represent the food of the men who built them, of those who navigate them, and of those who provide the fuel. The commissions represent the food of the men who sell the cotton, of the servants who wait upon them, of the men who build houses for them to live in, and carriages for them to ride in. The packet-ship represents the food of the men who felled and sawed the timber, and of those who transported it; of the men who dug and smelted the ore and fashioned the iron used in her construction, and the carpenters and workmen by whom it was put together. The work of twisting, and weaving, and finishing, represents the food of the twisters, and weavers, and finishers. If now we inquire what proportion the latter bears to the whole quantity, we shall find that it is far less than one-fourth of the whole. We will, however, assume that it is one fourth, and then show what becomes of the other three bales that the planter pays for one of manufactured cotton.

Debtor.	*Creditor.*
To five bales of cotton.	By *one* bale of cotton, twisted, woven and finished.
	By *one* bale given for the food of the persons who twisted, and wove and finished it.
	By *three* bales given for the food of the persons intermediately employed in carrying it to the twister and weaver, and bringing back to the planter the one bale twisted and woven ready for use.

This would seem to be a bad bargain. The planter will perhaps say, however, that we have allowed nothing for the use of the machinery employed in the conversion. True, we have not. Neither have we charged anything for the use of the machinery of production. Let us now see how that matter stands:

The average production of cotton does not exceed 300 pounds of clean wool to the acre. To produce two thousand bales would require, then, nearly twenty-seven hundred acres, actually under cultivation, to say nothing of all the rest of the plantation not in cultivation. The average amount of labor, per acre, for fitting these lands for production, including fencing, machinery buildings, gin-

houses, &c., is at least one hundred days, and we should be safe in putting it much higher.† This would give 270,000 days of labor. A mill that will convert these two thousand bales into cloth, does not represent more than 70,000 days of labor. The machinery of production is, therefore, more costly than that of conversion, in the ratio of four to one.

Under this head, then, the account will now stand thus:

Debtor.		*Creditor.*	
To machinery for producing four bales of cotton,	16	By machinery for converting one bale of cotton,	1

The transaction appears to be a very unprofitable one. The planter is giving five bales of cotton, produced by the aid of very costly machinery, for one bale converted into cloth by the aid of comparatively inexpensive machinery. He gives four bales for doing that which, if the machinery were on or near his plantation, might be done for less than one bale.

In the performance of this operation, he is always in fact, as we have seen, buying food and paying for it in cotton. He is always paying for it in distant markets, where its price is high, while he or his countrymen are perpetually engaged in the effort to sell it at low prices at home. In getting his yard of cloth he pays for food consumed in the steamboat—in New Orleans—on shipboard—in Liverpool and Manchester, at which latter place it is probably four times higher than at which he would gladly sell on his plantation, and he wastes a vast quantity because of the want of a market near him and the heavy cost incident to its transportation to distant markets.

One acre of land yields 300 pounds of cotton. One hand in a mill converts eight bales, or 3,200 pounds, the produce of more than ten acres.

An acre of land, well cultivated, will supply food for one person who will convert these eight bales into cloth.

The planter gives four bales for having one converted, or eight for the conversion of two, according to the testimony of an enlightened journalist residing in the heart of the cotton region, and speaking under the benefit of the best lights on the subject.

Let us now see how the account stands again:

Debtor.	*Creditor.*
To the use of five acres of cotton land.	By the use of one-eighth of an acre of food land.

It is obvious that nearly the whole of these bales are swallowed up in freights, charges, commissions, &c., and equally obvious that these charges consist almost altogether of food, an article which the planter can supply in almost unlimited quantity. Could these charges, occurring between the planter on the one side, and the weaver and the twister on the other, be saved, the planter would obtain more than one bale of cloth for two of cotton. To accomplish this, there is but

†B. Smith, Esq., one of the wealthiest planters in the southwest, told us that it cost him $70 an acre to clear and prepare heavy timbered land for cotton on the Mississippi bottom.

one mode of proceeding, and that is to persuade (by taking measures to make it the interest of its owners,) the *machinery to come to the cotton*, and thus obviate the necessity for sending the cotton to the machinery. At present we seem to be pursuing the same course that would be pursued by the man who should expend hundreds of days of labor in clearing and cultivating land for the production of wheat, and then wasting two-thirds of it on the road to and from the distant mill for the want of the application of three or four thousand days of labor to put up a mill on his own land. A grist-mill costing 5,000 days of labor will grind all the grain produced upon land that has cost 200,000, and perhaps 500,000 days of labor to place it in its existing condition; and yet the man above referred to, with such a force and plantation, wastes more annually than would build such an one. So is it with our planters and farmers. We see in every little community that mills speedily rise for the conversion of grain into flour, and are satisfied with one-eighth toll; and so we see in every neighborhood where there are timber and little water power, saw-mills are got up for converting lumber into boards, and with each such operation, flour and boards are obtained at less cost of labor, and the farmer has to give less of wheat, and of timber, to have them converted into flour and boards. What would the wheat grower say who should have to give five bushels for getting one back in flour‡—and what should the cotton grower say to getting one bale of cotton in the form of cloth? Let him reflect on this, and then answer the following one: Why should not every community of somewhat larger size have, in like manner, its own place for converting cotton into cloth? Could that be done, the planter would obtain half the cloth yielded by his cotton.

The latter will, at first view, probably deny this. He will say: If I sell my cotton to go to Manchester, it will produce me five cents. If I sell it to the manufacturer on the ground, he will give me no more. If I buy English cloth it will cost me ten. If I had a manufacturer on the ground, I should pay the same. So he might for a time; but the manufacturer would make large profits, and competition would speedily arise, and then he would have his cloth on the ground as cheaply as he could buy it in Lowell, and here would be one saving. This, however, is not all. Let the planter look around and see how much of the labor of his neighborhood is wasted for want of the demand that would be produced by the vicinity of the factory. Then let him reflect upon the advantage to be derived from having, in that factory, a place of employment throughout the year, of the persons who might, in case of need, aid him in his picking, and thus save for him the labor that is now lost on cotton wasted in the field, or overtaken there by frost. Let him consider these things, and he will probably find that the

‡In some places in Virginia—in the Rappahannock, for instance—the farmer does pay as much as one barrel to get four transported to Fredericksburgh, apparently not stopping to calculate at what price and what yield per acre that becomes a losing game, and apparently not reflecting that while they pay twenty five cents for transporting one dollar's worth of wheat, they could transport the same weight, or fifteen dollars worth of wool—or seven dollars and fifty cents worth of cheese, or eighteen dollars worth of live beef—at the same cost!

loss in them alone, is equal to the value of the labor required for the conversion of all the cotton in the neighborhood into yarn. If they would be saved, and he could thus, with the same labor, send yarn to market instead of cotton, he and his neighbors would be great gainers by the operation.

Having done this, let him look to the price at which he sells his corn and see what would be the difference to him if he had a market on the ground in consequence of the conversion of some of his neighbors into mechanics, mill operatives, &c. Instead of remaining poor on the produce of little pieces of land, they would obtain good wages, and consume double their present quantity, while producing none. He would at once save much of the cost of transportation. He would sell food at home instead of having to buy it, with cost of commissions and transportation from his own neighborhood added to it to increase its price at Manchester or Lowell, and all would be a great gainer by the operation.

Let him then look to his cleared land, and study what would be its value if all the manure yielded by his hay, and oats, and corn, and fodder, went back upon the land, instead of being wasted on the road, and if all of that yielded by his wheat and corn remained upon the ground instead of going to Lowell or Manchester, and see if he would not be a gainer by the operation.

Let him then look to his uncleared land, and calculate how much it would cost him to destroy the timber.§ Let him then calculate the value of the timber, if the factory were near him, and if the blacksmith and the shoemaker, the hatter and the tanner, the bricklayer and the carpenter, wanted houses; and if a town were growing up around the mill, and its inhabitants wanting pork and meal, and milk and beef, and flour, and potatoes, and mutton, and see if he would not be a gainer by the operation.

Let him look to the quantity of land upon which this timber stands, and on which he is paying or losing interest. Let him then look to the quality of that land, and compare it with what he now cultivates. Let him calculate how many bushels of potatoes it would yield, and compare their value, when consumed upon the ground, with that of the 300 pounds of cotton now yielded by an acre, and see if he would not be a gainer by the operation.

Let him add all these things together and see if he would not save all the freights and commissions; even although he obtained no more for his cotton, and paid as much for his cloth. Let him see if he would not obtain the full value of his cotton, instead of, as now, obtaining but one-third of it.

The truth is, that the great cities and towns of the world are built up out of the spoils of the farmer and planter. Looking around here in New York, or in Philadelphia, or Boston, it is not possible to avoid being struck with the number of persons who live by merely exchanging—passing from the producer to the consumer—producing nothing themselves. Wagons and wagoners, carts and

§A planter of the highest respectability, informed us at Montgomery, that he had in vain offered twenty dollars an acre to have two hundred acres cleared for cotton. Why don't the planters of Montgomery unite to build a steam factory.

cartmen, boats and boatmen, ships and sailors, are every where carrying about cotton, and wool, and corn, and wheat, and flour, as if for the pleasure of doing it. The man of Tennessee sends his cotton to Manchester to be twisted. His corn goes along with it to feed the man that twists it. It leaves him worth twenty cents. By the time it is consumed by the Manchester spinner, it is worth, perhaps, a dollar. The laborer buys it at that price. The manufacturer gives him a dollar to pay for it, and he charges it to the cloth at $1 10. The corn and cotton become cloth, and the Tennessee man buys it back, paying—as we see by the New Orleans paper—*five bales for one!* He can sometimes send his corn, but he can never send his potatoes, and the reason why he cannot is, that they are of the class of commodities of which the earth yields so largely, that they will not pay freight. The only things he can raise for market, are those of which the earth yields little, and that will therefore pay freight. He raises three hundred pounds of cotton, all of which goes to market, bringing him back but sixty fashioned in cloth; returning nothing to the land of what it drew out of the land, whereas, if he had consumers near him, he would raise almost as many bushels of potatoes, the manure for which would go upon the land to enrich it, and make himself rich. He could then afford to clear, and ditch, and drain, and cultivate the richest land, now covered with timber, or with water.

Why does he not do these things? Why does he not bring the consumer to his side? Why does he continue, year after year, to send his grain, or cotton, to the distant mill, instead of bringing, once and forever, the mill to him? The reason may be found in the newspapers every day. Last year cotton manufacturers, wool manufacturers, and iron manufacturers were prosperous. Now they are stopping their work. Many are already ruined, and many more are likely so to be. Why is this? Does it arise out of any change in our own affairs? It does not. It arises out of changes abroad. Last year England made railroads, and consumption then was large. This year she does not make roads, and consumption is small. Last year we built factories and furnaces. This year manufacturers and furnace builders are ruined. All of them would be ruined, had they not a tariff of protection, inadequate as is that of 1846, to give them that protection that is needed to secure them against such changes. Prosperous they would now be had the tariff of 1842 remained unaltered; and the thousands employed in them would have remained profitable consumers for the farmers, instead of being driven over the country to become the rivals of the farmer, increasing the quantity of provisions of which there is already a redundance.

We may now readily see why the planter of South Carolina and Georgia, and Tennessee, has not the consumer near him; why he continues year after year, wasting his cotton and his corn on the road going to the mill, instead of bringing the mill to him. The whole system of trade, by which the cotton and the food are thus forced to go to the mill instead of the mill coming to them, is unsound and unnatural, and therefore irregular, unstable and ruinous. Revulsions are

and must be perpetual occurrences; and none can risk their means in factories or furnaces, but men who can afford to incur great risks for the sake of exorbitant profits. The whole system is one of mere gambling, and so will it continue to be while the trade of the country remains thus liable to be deranged by changes in the action of foreign nations, over which we can have no control; and so long will the planter continue to give five bales of cotton for one of cloth. Whenever he shall determine to take for himself the protection necessary to enable him to bring the spinner and weaver to his side, there to eat the corn, while converting the cotton into cloth, he will save all the vast expense of transportation to which he is now subjected; he will increase the market for his cotton at home, and he will obtain better prices for the cotton and corn that he sends into the general market of the world. All this he will do when he shall have arrived at the conclusions that the question of protection, is in fact and in truth, one of *protection to the farmer and planter*, and not of protection to the manufacturer. The latter with his machinery can go where he will. The planter's land cannot change its place. The former will come to him, as the grist-miller does, all over the country if he can be assured of adequate and uniform remuneration, and the freight and commissions will then be saved. If the manufacturer cannot safely do this—if he continue to be, as in past times he has been, forbidden by the fear of change in parties and party policy, he will continue to compel the planters' produce to come to him, and commission and freights will continue expensive and wasteful as now they are.

Let the planter examine carefully the changes that have occurred in the prices of cotton in the last twenty years, and see if they have not been produced by the perpetual revulsions of England. Let him look around him now, and see if the change under which he now suffers is not due to the fact that he employs for the sale of his great product, *a broker that becomes bankrupt every four or five years.* Throughout the world there exists at this moment, a greater power of consumption than existed twelve months since; and yet cotton has fallen to little more than half, and that for no reason but that English banks and bankers, English manufacturers and merchants, have become bankrupt. Why should the American planter be longer dependent on them? All the cloth made out of our cotton will be wanted and used whether manufactured here or there, and will need as many consumers to be employed in the work of conversion. Why, then, should we not bring the machinery of conversion to the side of the wool and the cotton, instead of sending the wool and cotton three thousand miles to the mill, and thus abolish, forever, the necessity of depending upon this great broker, who fails so frequently. "Nothing," to use the words of the South Carolina Committee, on the scheme for reducing the quantity of cotton, "can have more disastrous effects upon planters, than this fluctuation from low prices to high, and from high to low. All which is necessary," as they say in continuation, "to our prosperity, is a diminution in our wants, and a near approach to certainty in the market value of cotton."

Such is the want of the whole country. The manufacturer wants some certainty, and therefore does he ask for protection against the endless and enormous fluctuations of England. The iron-master wants some certainty, that he will not be ruined by those fluctuations. The farmer wants some certainty, that the furnace or the mill in his neighborhood shall not be closed by the fluctuations of English policy. The cotton planter wants certainty. None can have it while England shall continue the broker of the whole cotton and wool-growing world. Let the farmer and the planter unite, not on party, but on *American* ground, to bring the consumers, with their capital and machines to their sides, and protect them when there; and thus they will *protect themselves*, and all will have certainty.

By the following extracts, for which we are indebted to De Bow's Commercial Review, it will be seen that Georgia and Tennessee are both going ahead in the important matter of bringing the consumer to the side of the producer. What is to be the effect of the present revulsion in England on their infant manufactures, remains yet to be seen. The great factories at Lowell, admirably as they are managed, make no dividends. The great establishment at Fall River, the first in the Union for printing cloths, is ruined. Large establishments elsewhere have failed, and more are likely to fail, and we have our fears for those at the South. The natural consequences of this must be, that now, few factories will be built for some some time, and thus the planter has his market at home diminished at the very moment when, from the failure of his great broker abroad, and the consequent difficulty of selling his cotton, he has most reason to desire to see it increased, and so it must continue to be, until he shall determine to take for himself such effectual protection as will enable him to entice the little and inexpensive loom to come and take its place by the side of the great and costly machine of production.

Resources of Georgia, Manufactures, &c.—Mr. Nisbit, whose able article on Georgia in the Southern Review, elicited so much applause—has lately made a report as Chairman of the Committee on Manufactures, in that State, from which we extract:

Georgia presents the greatest possible advantage as a manufacturing State. She has a large amount of unemployed capital and labor. She boasts a climate favorable for every kind of enterprise and exertion. And then she occupies a geographical position which gives her ready access to the markets of the world, with her manufactured products.

But a few years have elapsed since the introduction of manufacturing into Georgia. Those few years have witnessed the initiative policy, its rapid advance, and its triumphant success. We have in successful operation several iron establishments, with large capitals, and giving employment to some hundreds of operatives. These establishments are furnishing iron ware of various kinds, cheap in price, respectable in quantity, and unexcelled in quality. They are also pre-

paring to supply iron for machinery, agricultural implements, railroads, and all the uses of life. In the department of cotton manufacturing, your Committee have collected a few statistics, which they do not present as accurate, but approximating thereto. We know of thirty-two cotton factories in our State, in operation, or in progress of construction. There are employed in the buildings and workings of these thirty-two factories, two millions of dollars. The number of hands engaged therein is near three thousand, and of persons directly receiving their support from the same, six thousand. The consumption of provisions and agricultural products, (other than cotton,) by these factories, is fully equal to three hundred thousand dollars per annum, at present prices. Their consumption of cotton per annum, reaches 18,000 to 20,000 bags, and the value of manufactured goods turned out by them last year, fell nothing short of one and a half millions of dollars. One-third of these manufactured goods were sold out of the State, mostly in the Northern markets, and partially in the Valley of the Mississippi—that illimitable field of consumption which lies open to the enterprise of our manufacturers.

Manufactures in Georgia and Tennessee.—Georgia and Tennessee are destined to become the great manufacturing States of the South, if not of the Union, because they have not only greater resources in proportion to their population, but, being traversed in every direction by railroads and rivers, and having a double outlet both to the Gulf and the Atlantic, they will possess unparalleled advantages in regard to both the foreign and domestic markets. If our people would display one-half the energy and enterprise of the Yankees, in a quarter of a century from the present time, we could surpass the whole of New England in wealth and population. Indeed, all that we now lack to develop that enterprise and energy, is the establishment of manufactories, and the more general introduction of machinery.

Let us compare for a moment the agricultural wealth of the two States named, with that of New England. Georgia and Tennessee have, together, a population of 1,694,000; the States of Maine, New Hampshire, Massachusetts, Vermont, Connecticut, and Rhode Island have 2,422,000 souls. Now let us see the relative products of the two sections as developed by the census of 1840, and by more recent statistics:

	New England.		*Georgia and Tennessee.*	
Corn,	11,943,000	bushels.	83,584,000	bushels.
Wheat,	2,898,000	"	9,911,000	"
Potatoes,	20,581,000	"	3,792,000	"
Rye,	2,582,000	"	448,000	"
Oats,	11,247,000	"	9,458,000	"
Buckwheat,	1,097,000	"		
Total,	50,348,000		107,194,000	

From the same journal we take the following comparative view of South Carolina and Rhode Island:

Manufactures for the South—Rhode Island and South Carolina.—One great cause of the unproductiveness of our capital and labor, is the want of diversion of them. In every country there is a kind of labor which experience proves to be the best and most productive of that country. In one, Agriculture should predominate; in another, Manufactures; in a third, Commerce; but in no one on the face of the globe has an exclusive attention to either of these branches been found the most profitable. It is the judicious combination of them all that makes a nation great, and prosperous, and happy. This is an old political doctrine; its antiquity, however, is no disparagement to its truth. For its illustration, we shall go no farther than the history of our own country. And fortunately for our purpose, the last census of the government furnishes data upon which there can be no dispute.

If we divide the population of Rhode Island (138,830) and that of South Carolina (549,398) into their respective annual incomes, viz: into $13,001,223 for Rhode Island, and into $27,173,536 for South Carolina, it will be perceived that Rhode Island divides, as the yearly income of each of its inhabitants, $100, while South Carolina divides only $45. If you take out the black population in both States, and make the division only among the whites, Rhode Island will divide $119, while South Carolina will divide $101. These are startling facts. Why are they so? It will, perhaps, be said it is either because the people of Rhode Island are more industrious than our people, or are engaged in more profitable labor; or from both causes combined.

The first of these we are unwilling to grant. Naturally, we believe, there are no people more willing to work than ours, when only taught to see a profitable result to their labor. The difference in the profits of the two States must be attributed, therefore, to some other cause. The labor of Rhode Island is diversified, ours is not. Let us see: there are engaged in

Rhode Island.		*South Carolina.*	
Agriculture	1 in 6	Agriculture	1 in 3
Commerce	1 in 87	Commerce	1 in 301
Manufactures	1 in 5	Manufactures	1 in 57

Divide the population of the two States into families of five each; there will be 27,766 families in Rhode Island, and 118,879 in South Carolina. Give to each family, and to the horses, cattle, hogs and sheep attached to each, the amount of grain, potatoes and hay usually consumed by them, and it will appear that South Carolina will be deficient in a self-supply as much as a million and a half bushels, while Rhode Island will have a surplus of very nearly that amount. This arises from the fact that South Carolina has more horses and cattle to support than Rhode Island. Thus, they are in

Rhode Island.			*South Carolina.*		
1-2	a horse to a family of	5	1 1-2	horse to a family of	5
1	cow to a family of	5	1	neat cattle to a "	5
4	sheep to a family of	5	1	sheep to a family of	5
1	hog to a family of	5	7 1-2	hogs to a family of	5
6½	of all kinds.		14	of all kinds.	

Suppose them to be equal, and that both States have enough of wheat, rye, oats, barley, potatoes and hay to support their population and cattle, and the comparative incomes of the two States would stand thus:

	Rhode Island.	*South Carolina.*
Manufactures,	$8,640,526	$2,248,915
Commerce,	1,294,957	2,632,421
Mines,	162,410	187,608
Forests,	44,610	549,626
Fisheries,	659,312	1,275
Rice,		1,514,772
Cotton,		4,628,270
Total,	$10,801,914	$11,762,986

From this estimate, each inhabitant in Rhode Island, after feeding himself, will have over $99 for clothing and other expenses, while each one in South Carolina will have a fraction under $20.

The above table also shows another fact of much importance. The manufactures of Rhode Island are more valuable than the cotton and rice of Carolina taken together. In other words, the labor employed in the one is more productive than in the other two.

It is a question, then, which comes directly home to us, "Is South Carolina less capable than Rhode Island of excelling in the same profitable labors?"

We have already combated that class of complainers who are eternally decrying the profits of agricultural labor; there is another class who elevate it too much, even to the exclusion of all other pursuits. Nothing is easier than to be so deceived. Such persons view the agricultural calling with a poetical eye and see in it nothing but pastoral beauty and happiness. Were this the occasion, no task would be more pleasant than to indulge in drawing a picture of the virtue, and excellence, and riches of a people thus engaged. As a rhetorical exercise, it might afford entertainment; but the true economist, criticising the work, would pronounce it only a fancy picture, alike untrue to nature and to fact.

Besides this, the introduction of different manufactures among us, would have an effect not less important to our agriculture—we mean the great inland trade it would create. In every prosperous country the inland or indirect trade is far greater than its foreign or direct trade. In England or New York, for instance, it is fifteen times greater. Consider, then, a new trade created for Carolina ten

times greater than at present; consider for a moment the influence upon agriculture—how much more certainty it would afford the merchant in the investment of his capital than in foreign risks; what a numerous class of workmen it would employ; the misery it would remove by giving business to the idle, and the content and happiness it would afford the complaining. Is not such a consummation devoutly to be wished for?—*South Carolinian.*

Such a consummation *is* most devoutly to be wished, but how is it to be obtained?

Of all the cotton-growing States, South Carolina is the one whose planters most need protection, because they are nearest to the great cause of disturbance. The manufacturer of Tennessee is protected by distance. He buys his cotton cheaper, and he can sell his cloth dearer, because of the difference of freight, and therefore it is possible that he may be enabled to go on, notwithstanding the occurrence of these unceasing and enormous revulsions. The manufacturer of South Carolina is not so protected, and the danger of ruin to those who may engage in converting the food and the cotton of that State into cloth, and thus diminishing the cost of the conversion, is immense. Of all the States of the South, that is the one that is best situated for manufacturing. She has more wealth at command than any other. Her citizens have always been large stockholders in *distant banks,* because at home the State was the great banker. By regulation she has thus driven abroad the wealth that should have been retained at home, and her citizens are now flying from poor lands that they have exhausted, leaving behind them the richest lands of the State untouched. Marl and limestone, the proper application of which would render her one of the richest States of the Union, abound throughout the State, yet men fly to Arkansas and Texas, abandoning their houses, their relatives, and their friends, because they cannot find near those homes a demand for the food that they could raise in such vast abundance on her rich and untouched soils.

South Carolina is the State that *of all others* most needs protection. It is the one that would, of all others, most profit by it. It is, nevertheless, the one of all others, whose planters are most determined not to take for themselves that protection which would make her the Rhode Island of the South, and enable her to maintain that position in the Union which she is now so rapidly losing, because of her increasing tendency to depopulation. The day cannot, we think, be far distant when she will open her eyes to the error of her policy.

Much as this article has been extended, the subject growing in interest as we contemplate it, we cannot close it without making the following brief extracts from Mr. Carey's remarkable and convincing work, "The Past, the Present, and the Future," to which we have elsewhere referred, and which every friend of agriculture and the *real independence* of his country ought carefully to read:

"What is the extent of indirect taxation upon the people of the United States by means of the system which keeps the producer and the consumer widely sep-

arated, may perhaps be estimated if we take into consideration the following facts:

"1st. The labor annually expended in the construction of carts, and wagons, and ships, that would be unnecessary if the consumer and producer could be permitted to take their place by the side of each other, would produce as many mills and furnaces as would convert into cloth half the cotton and wool produced, and smelt the ore for making all the iron used in the Union. To the carts, and wagons, and ships, may be added the labor of horses and oxen and mules employed in the same wasteful work.

"2d. The time lost by the persons employed in the work of unnecessary transportation and exchange; by those who are idle in whole or in part for want of a regular demand for labor; and by those who are on the road seeking for new places of residence, is more than would be required for the work of converting all the wool into cloth, and all the ore into iron.

"3d. The labor that is now given to the work of cultivating poor soils yielding ten bushels to the acre, instead of rich ones that are capable of affording tons of food by aid of which poor soils might be enriched, would yield double the return could the consumer take his place by the side of the producer and thus save the manure that is now wasted.

"4th. The labor that is now wasted in making and repairing roads through new States and Territories, and among scattered settlements in both old and new States, if applied to the improvement of old roads, would diminish annually, and largely, the cost of transportation of the products of those portions of the earth requiring to be exchanged.

"It may safely be asserted that the labor of man, as now applied, is, on an average, but half as productive as it would be were it possible for the consumer and the producer to be near neighbors to each other; and if so, it follows that the indirect taxation by aid of the colonial system is equal to the whole of the present product of the Union, which we have estimated at two thousand million of dollars. If we wish evidence of the extent to which taxation is pushed by aid of this system, we need only to look to all the colonies of England throughout the world, Ireland, India, the West Indies, Canada, Nova Scotia, and South Africa, and we shall find exhaustion and depopulation universal, as it must continue to be wherever the power of self-protection has no existence."—[*Farmer's Library.*

ART. IX.—SHIP BUILDING ON THE WESTERN WATERS.

There is no branch of industry which has been so completely overlooked in the west, as that of ship building; while there is none, perhaps, which promises a better reward to the mechanic, or more profit to the capitalist. We are pleased to find that our industrious and able correspondent, S., of Louisville, (Ky.) has brought this subject before the people of the west. It is a business of much

importance in the economy of the country, and highly worthy of the consideration and encouragement of all classes. The advantages of ship building upon the western waters are fairly and clearly stated in the following communication, and are such as must be appreciated by our readers. We are under obligations to our correspondent S., for the interesting communication of Dr. S. P. Hildreth, of Ohio, giving a history of ship building at Marietta. Many of our readers will doubtless be surprised to find, that the building of ocean craft was so extensively carried on at that place, in the early part of the present century.

We respectfully and earnestly solicit information upon the economy of ship building on the western waters, and trust that those of our readers who are acquainted with the subject will favor us with such facts as will enable us to place the merits of this business fairly before the country.

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To the Editors of the Western Journal:

The establishment and success of your Journal is one of the many indications presented, not only of the interest now felt in the west on the subject of home manufactures and a home market, but of our ability to obtain and sustain both.

What is now chiefly required, is information of a practical character, and clearly showing what we most need, and how this want can best be supplied—in what branches of manufactures we possess peculiar advantages, and *when* and *how* these can be most advantageously established.

In the articles of mine, now being published in your Journal, I have endeavored to prove that in the manufacture of cotton goods for the western demand, we have the advantage over all competitors of over 25 per cent. In my calculations I find that I have made some important errors, but fortunately for my argument, these errors are against me. The cost of building and operating a cotton mill is put too high, and the cost of transportation too low. For instance, the cost of spindles is stated at $12 each; they can now be had at the best machine shops at $10—the actual cost of making them is not over $7 75. This is the most important error that has been pointed out to me, and it lessens the estimate of capital required, for a mill of the size stated, $20,000

But my present object is to call the attention of your readers and correspondents to another very important branch of industry, in which, as I conceive, we have, if possible, greater advantages than in the manufacture of cotton. I refer to the building of ocean craft of every description. For these we have the raw material —timber, iron and hemp—at our very doors.

I am not particularly familiar with the construction of ships, and can only throw out suggestions and state general impressions, which I trust will educe all the facts connected with the subject, from those who possess them. I understand that the commercial marine of this country is built almost entirely north of the Chesapeake Bay, and the region of live oak, and of *fresh water timber.* On the tide water the timber has been exhausted for years, and that which is now used

is rafted or transported from the interior, and at great cost. I have known the timber on land fifteen miles from the sea, sell for $200 per acre, thence hauled three miles to a saw mill, and from that four miles to the ship yard, on tide water, and where a ship of four hundred tons could be floated to the sea only during the high spring tides. This was in New Hampshire. This timber in no respect was superior to that which we have, in quantities apparently inexhaustible, on the banks of our streams that are navigable at all seasons. I have no knowledge of the Mississippi above Cairo, but recently I passed through a forest of white oak immediately back of Mills' Point, which would furnish the timber for the navy of christendom. This oak district, as I understand, commences below Randolph and extends up as high as Columbus. Between these points ships of any burthen can be built and sent to sea at almost any period of the year. The banks of the Ohio, the Tennessee and the Cumberland, are skirted with the best kinds of ship timber, and these rivers, for hundreds of miles, are navigable at seasons of the year when the produce of our country is ready for market.

The ship Minesota, recently built at Cincinnati by Captain Deshon, and under direction of one of the best eastern architects, recently passed us, on her way to Liverpool. She is pronounced by competent judges to be equal in every respect, to any merchant vessel now on or off the stocks on the eastern seaboard. The estimate of comparative cost of our upper Ohio built ships, and those built at the east, is a saving of about twenty per cent. in first cost, and from fifteen to twenty per cent. more in the freight to New Orleans. For instance, the Minesota, of say eight hundred tons, would take a downward freight of five thousand dollars. The cost of towage would be, say one thousand dollars, and this would be more than saved in cost of re-shipment at New Orleans.

We have these advantages—

The cheapest timber, iron, hemp and provisions; easy navigation; saving of cost of re-shipment, and heavy charges at New Orleans; absence of risk—of damage to perishable freight exposed to the sun in a hot climate; saving of time, interest and insurance.

Shippers of corn, flour, meat, and tobacco only, will fully appreciate the advantage of sending these staples to a distant market, and through an inter-tropical climate, in vessels clean, fresh and cool, and in the shortest possible time.

If I am correct in these general views, here is an opening for an immensely valuable business to our men of capital and enterprise, and of vast importance to our country. No small part of the timber in the English dock yards has been transported from Canada, Norway, and the Baltic, and from fresh water streams. The ships built therefrom, are provisioned with our meat and bread. Let us build the ships here—load them with our products, and sell ship and cargo abroad. We shall find the demand unlimited, and we shall, to the extent we go into the business, take labor from less profitable employments, and create an additional home market for our agriculturalists.

My object will have been gained if the foregoing hasty and crude suggestions induce some competent persons to take up the subject, and give us the practical information desired.

The commencement of ship building on the Ohio, was at Marietta; to obtain the history of its progress there, information was solicited from Dr. Hildreth, who has favored me with the following letter, which will doubtless interest you.

Louisville, May, 1848. Yours, S.

[Copy.]

MARIETTA, (OHIO,) MAY 12, 1848.

HAM. SMITH, Esq., *Louisville, Ky.*,

DEAR SIR—Your favor of 10th ultimo, has been received. The object is a very laudable one and should be advocated and encouraged by all good citizens of the Valley of the Ohio. Ship building in a region where oak timber is so abundant and cheap, one would suppose might be conducted with profit, compared with that business on the Atlantic coast east of the mountains. The early settlers of Marietta, seeing no good market for their surplus produce, the transport being too expensive for the conveyances then in use, turned their attention to ship-building —thus furnishing the mode of sending their produce to a foreign market, and turning their useless forests to a good account, instead of burning up the lumber in log heaps. It was commenced as early as the year 1800, when the brig Arthur St. Clair of 110 tons was built, loaded with pork and flour and conducted to the ocean by Com. Abra. Whipple. The Spaniards then possessed the shores of the Mississippi, and threw many obstructions in the way of navigation. The experiment was successful and profitable to the owners. In 1801, the ship Muskingum of 230 tons and brig Eliza Green, 126 tons, were built and loaded with produce, making good voyages. In the year 1802, the brig Dominic, 100 tons, built or owned by H. Beauverleapett and D. Woodbridge; schooner Indiana 75 tons, brig Marietta 150 tons, and brig Mary Avery. In 1803, two schooners, Whitney, of 75 tons each; brig Orlando 150 tons. In 1804, ship Temperance, 230 tons, and schooner Nonpareil of 70 tons, and brig Ohio 150 tons. In 1805, brig Perseverance 160 tons. In 1806, ship Rufus King 300, John Atchison 320, Tuscarora 320, with brig Sophia Green 100 tons, and two gun boats of 75 tons each. In 1807, the ship Francis 300, Robert Hale 300, brig Rufus Putnam, brig Golata 140 tons. In 1808, schooner Belle, 100 tons. In 1809, the schooner Adventure, 60 tons. In 1812, schooner Maria, 75 tons. The embargo of Thomas Jefferson, in 1808, put a stop to ship-building in Marietta, as the sale of vessels was dull. The larger portion of the vessels were owned by Thos. Lord and B. I. Gilman, two enterprising merchants of Marietta. They were usually sold or built on contract for merchants in Philadelphia or New York, but often made their first voyage to the West Indies or Europe to dispose of the cargoes. Some of them took out cotton for the planters on the Mississippi, and as they had no steam cot-

ton presses in those days to condense the bags to a moderate bulk, the price of freight per pound to Liverpool, was enormous.

From 1812 to 1844 ship-building was not resumed in Marietta, but from 1823 to 1838 the building of steamboats was carried on regularly by James Whitney and others, numbering nearly forty vessels, some of a large class. In 1844, a company was formed for building ships, and up to 1848 constructed three ships and two schooners; and Mr. N. L. Wilson, of Marietta built one ship of 300 tons, loaded her with produce in 1846, and sent her to Ireland. On her return she was sold at a fair price in Philadelphia. Before the invention of steam boats on the Mississippi and Ohio rivers, several of the early built vessels were torn, or greatly damaged in their descent to the ocean—some on islands, sandbars, or rapids at Louisville. They can now be towed down safely, but the cost takes away a large share of the profit on building. Several vessels were built at Pittsburgh, and one or two at other places on the Ohio, before 1806. The commanders and sailors to man the vessels, as well as the riggers, came from the Atlantic cities. The cordage, cables, &c., were made at Marietta, and in 1806 supported three large rope-walks. The growth of hemp was greatly encouraged, and was one of the staple articles of agriculture in the rich bottoms of the Ohio, as late as 1810 and 1812. No finer locust or oak timber can be found in the United States than grows on the borders of the Ohio.

Very respectfully, yours, S. P. HILDRETH.

COMMERCIAL STATISTICS.

COMMERCE OF THE UNITED STATES WITH ALL NATIONS.

The following letter from the Hon. Zadock Pratt, to the editor of the Merchants' Magazine, will fully explain the object and value of the following tables. We have omitted the table of exports and imports for the nine months ending the 30th June, 1843:

Prattsville, *New York, April* 25, 1848.

Freeman Hunt, Esq.—*Dear Sir*:—As your Magazine has become the accredited repository of statistical information on all topics of commercial value, I take the liberty of sending you an interesting statement, which was prepared for me at the Treasury Department of the United States, in continuation of my report on the Bureau of Statistics. It presents, as you will observe, a complete view of the value of our export and import trade with each foreign country for the last five years, clearly showing the comparative importance of our trade with each country, as well as its fluctuations. By the recapitulation, you will notice that for three years out of five, the balance of trade was in favor of the United States—that is, our exports exceeded our imports.

The information embraced in this statement will be found to possess great practical value to merchants, manufacturers, and indeed all classes of intelligent men who take an interest in the development of our varied commercial and industrial resources. No statesman can legislate understandingly without such information.

I take great satisfaction in contributing to the pages of a journal in which every thing of value that appears finds an enduring record, and thus becomes matter of present and future reference.

With my best wishes for the continued usefulness and prosperity of the Merchants' Magazine, I am yours truly, ZADOCK PRATT.

Statistical View of the Commerce of the United States, from the 30th June, 1843, to the 30th June, 1847.

IN THE YEAR ENDING 30TH JUNE, 1844.

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Russia,	$555,414	$1,059,419		$504,005
Prussia,	218,574	12,609	$205,965	
Sweden and Norway,	230,101	421,834		191,733
Swedish W. Indies,	65,244	23,719	41,525	
Denmark,	112,834	6,063	106,771	
Danish West Indies,	870,322	624,447	245,875	
Holland,	2,698,944	1,310,081	1,388,863	
Dutch East Indies,	359,383	935,984		576,601
Dutch West Indies,	323,286	386,283		62,997
Dutch Guiana,	71,772	49,144	22,628	
Belgium,	2,003,801	634,777	1,369,024	
Hanse Towns,	3,566,687	2,136,386	1,430,301	
England,	46,940,156	41,476,081	5,464,075	
Scotland,	1,953,473	527,239	1,426,234	
Ireland,	42,591	88,084		45,493
Gibraltar,	579,883	44,274	535,609	
Malta,	16,998	15	16,983	
British East Indies,	675,966	882,792		206,826
Australia,	29,667	122	29,545	
Cape of Good Hope,	82,938	29,166	53,772	
British West Indies,	4,136,046	687,906	3,448,140	
British Honduras,	239,019	248,343		9,324
British Guiana,	309,236	9,385	299,851	
Brit. Am. Colonies,	6,715,903	1,465,715	5,250,188	
France on Atlantic,	14,148,503	15,946,166		1,797,663
Do. Mediterranean,	1,289,897	1,603,318		313,421
French W. Indies,	617,546	374,695	242,851	
French Guiana,	57,039	28,233	28,806	
Miquelon and French Fisheries,	3,484		3,484	
Fr. African Ports and Bourbon,	16,967		16,967	
Hayti,	1,128,356	1,441,244		312,888

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Spain on Atlantic,	593,439	252,127	341,312	
Do. Mediterranean,	39,106	381,237		342,131
Teneriffe and other Canaries,	15,535	61,653		46,118
Manilla and Philippine Islands,	222,997	724,811		501,814
Cuba,	5,238,595	9,930,421		4,691,826
Other Sp. W. Indies,	642,139	2,425,202		1,783,063
Portugal,	103,118	199,705		96,587
Madeira,	52,286	22,904	29,382	
Fayal & other Azores,	26,229	29,570		3,341
Cape de Verd Islands,	70 537	4,836	65,701	
Italy,	576,823	1,096,926		520,103
Sicily,	354,316	462,773		108,457
Sardinia,	92,522		92,522	
Trieste,	1,426,020	232,089	1,193,931	
Turkey,	283,384	385,866		102,482
Morocco,		5,876		5,876
Texas,	277,548	678,551		401,003
Mexico,	1,794,833	2,387,002		592,169
Central America,	150,276	223,408		73,132
Venezuela,	531,232	1,435,479		904,247
New Granada,	124,846	189,616		64,770
Brazil,	2,818,252	6,883,806		4,065,554
Argentine Republic,	504,289	1,421,192		916,903
Cisplatine Republic,	462,176	144,763	317,413	
Chili,	1,105,221	750,370	354,851	
Peru,	16,807	184,424		167,617
S. America generally,	125,938		125,938	
China,	1,756,941	4,931,255		3,174,314
Europe generally,	28,700		28,700	
Asia generally,	462,662	34,908	427,754	
Africa generally,	710,244	459,237	251,007	
W. Indies generally,	181,448		181,448	
South Seas,	349,379	41,504	307,875	
N. W. coast of Amer.	2,178		2,178	
Total,	$111,200,046	108,435,035	25,347,469	22,582,458

IN THE YEAR ENDING 30TH JUNE, 1845.

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Russia,	$727,337	$1,492,262		$764,925
Prussia,	567,121	31,082	$536,039	
Sweden and Norway,	273,328	627,938		354,610
Swedish West Indies,	90,339	12,119	78,220	
Denmark,	145,167	22,429	122,738	
Danish West Indies,	994,429	760,809	233,620	
Holland,	3,022,047	954,344	2,067,703	
Dutch East Indies,	201,158	538,608		337,450
Dutch West Indies,	337,788	363,324		25,536

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Dutch Guiana,	49,609	41,347	8,262	
Belgium,	1,851,073	709,562	1,141,511	
Hanse Towns,	4,945,020	2,912,537	2,032,483	
England,	46,286,178	44,687,859	1,598,319	
Scotland,	2,666,810	708,187	1,958,623	
Ireland,	103,471	104,857		1,386
Gibraltar,	589,671	92,118	497,553	
Malta.	12,909	22,311		9,402
British East Indies,	431,398	1,276,534		845,136
Australia,	70,311		70,311	
Cape of Good Hope,	33,743	26,439	7,304	
Mauritius,	12,935		12,935	
British West Indies,	4,124,220	752,580	3,371,640	
British Honduras,	239,915	204,818	35,097	
British Guiana,	418,748	7,957	410,791	
Brit. Am. Colonies,	6,054,226	2,020,065	4,034,161	
France on Atlantic,	14,322,685	20,181,250		5,858,565
Do. Mediterranean,	1,177,719	1,414,175		236,456
French W. Indies,	564,103	415,032	149,071	
French Guiana,	57,496	59,306		1,810
Miquelon and French Fisheries,		151		151
Fr. African Ports and Bourbon,	21,991		21,991	
Hayti,	1,405,740	1,386,367	19,373	
Spain on Atlantic,	271,783	117,158	154,625	
Do. Mediterranean,	84,508	954,628		870,120
Teneriffe and other Canaries,	5,895	55,032		49,137
Manilla and Philippine Islands,	154,578	633,059		478,481
Cuba,	6,564,754	6,804,414		239,660
Other Sp. W. Indies,	708,924	2,026,253		1,317,329
Portugal,	129,769	296,908		167,139
Madeira,	61,096	168,674		107,578
Fayal & other Azores,	2,882	28,573		25,691
Cape de Verd Islands,	53,433	7,579	45,854	
Italy,	817,921	1,301,577		483,656
Sicily,	405,292	529,493		124,201
Sardinia,	195,797	19,859	175,938	
Trieste,	1,801,878	321,550	1,480,328	
Turkey,	165,099	781,517		616,418
Texas,	363,792	755,324		391,532
Mexico,	1,152,331	1,702,936		550,605
Central America,	67,649	65,269	2,380	
Venezuela,	725,130	1,268,275		543,145
New Granada,	78,977	171,921		92,944
Brazil,	2,837,950	6,084,599		3,246,649
Argentine Republic,	503,006	1,750,698		1,247,692
Cisplatine Republic,	157,136	20,573	136,563	

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Chili,	1,548,191	1,123,690	424,501	
Peru,	33,424	336,112		302,688
S. America generally,	85,239		85,239	
China,	2,275,995	7,285,914		5,009,919
Europe generally,	21,573		21,573	
Asia generally,	312,748	106,110	206,638	
Africa generally,	605,106	572,126	32,980	
W. Indies generally,	182,976		182,976	
South Seas,	473,089	136,565	336,524	
N. W. coast of Amer.		245		245
Sandwich Islands,		1,566		1,566
Total,	$114,646,606	117,254,564	21,693,864	24,301,822

IN THE YEAR ENDING 30TH JUNE, 1846.

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Russia,	$632,467	$1,570,054		$937,587
Prussia,	435,855	31,584	$404,271	
Sweden and Norway,	402,337	724,865		322,528
Swedish West Indies,	141,569	5,285	136,284	
Denmark,	121,242	1,313	119,929	
Danish West Indies,	1,125,916	752,614	373,302	
Holland,	2,296,765	1,059,597	1,237,168	
Dutch East Indies,	83,542	480,353		396,811
Dutch West Indies,	279,154	398,056		118,902
Dutch Guiana,	67,984	33,674	34,310	
Belgium,	2,381,814	836 372	1,545,442	
Hanse Towns,	4,608,620	3,149,864	1,458,756	
England,	44,540,108	43,844,160	695,948	
Scotland,	1,688,746	1,230,086	458,660	
Ireland,	1,082,471	85,774	996,697	
Gibraltar,	592,892	27,806	565,086	
British East Indies,	370,372	1,361,345		990,973
Australia,	48,783		48,783	
Cape of Good Hope,	23,713	81,686		57,973
Mauritius,	26,256	22,023	4,333	
British West Indies,	4,947,557	833,678	4,113,879	
British Honduras,	390,032	207,997	182,035	
British Guiana,	553,302	12,561	540,741	
British Amer. Colonies,	7,406,433	1,937,717	5,468,716	
Malta,	34,681	21,589	13,092	
France on the Atlantic,	14,040,449	22,608,589		8,568,140
Do. Mediterranean,	1,090,126	1,302,743		212,617
French West Indies,	635,621	348,236	287,385	
French Guiana,	41,401	71,296		29,895
Miquelon & Fr. Fisheries,		18		18
French African Ports and Bourbon,	5,995 / 12,259		18,254	
Hayti,	1,157,142	1,542,962		385,820
Spain on the Atlantic,	345,442	147,363	198,079	
Do. Mediterranean,	130,153	864,416		734,263
Teneriffe & other Canaries,	17,912	62,095		44,183
Manilla & Philippine Isles,	110,239	865,866		755,627
Cuba,	5,487,136	8,159,632		2,672,496
Other Spanish W. Indies,	701,346	2,277,110		1,575,764

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Portugal,	104,769	378,250		273,481
Madeira,	64,200	127,070		62,870
Fayal and other Azores,	4,225	41,297		37,072
Cape de Verd Islands,	31,782	857	30,925	
Italy,	1,366,915	1,189,786	177,129	
Sicily,	617,832	513,235	104,597	
Sardinia,	284,259		284,259	
Trieste,	1,470,611	379,719	1,090,892	
Turkey,	200,103	760,998		560,895
Morocco,		4,554		4,554
Texas,	473,603	183,058	290,545	
Mexico,	1,531,180	1,836,621		305,441
Central America,	120,253	116,733	3,520	
Venezuela,	781,547	1,509,000		727,453
New Granada,	75,944	67,043	8,901	
Brazil,	3,143,395	7,441,803		4,298,408
Argentine Republic,	185,425	799,213		613,788
Cisplatine Republic,	225,904	26,472	199,432	
Chili,	1,768,570	1,275,960	493,610	
Peru,		252,599		252,599
South America generally,	103,772		103,772	
China,	1,332,741	6,593,881		5,262,140
Asia generally,	428,519	361,988	66,531	
Africa generally	632,351	475,040	157,311	
West Indies generally,	127,651	12	127,639	
Atlantic Ocean,		166		166
Pacific Ocean,	354,903	153,029	201,874	
Sandwich Islands,		243,034		243,034
Republic of Esquador,	1,130		1,130	
Total,	$113,488,516	121,691,797	22,242,217	30,445,498

IN THE YEAR ENDING 30th JUNE, 1846.

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
Russia,	$750,450	$924,673		$174,223
Prussia,	202,166	7,608	$194,558	
Sweden and Norway,	420 187	613,698		193,511
Swedish West Indies,	113,721		113,721	
Denmark,	203,895	475	203,420	
Danish West Indies,	989.303	846,748	142,555	
Holland,	2,015,334	1,247,209	768,125	
Dutch East Indies,	200,140	894,982		694,842
Dutch West Indies,	233,569	279,038		45,469
Dutch Guiana,	44 228	59,355		15,127
Belgium,	3,222,557	948,325	2,274,232	
Hanse Towns,	4,334,638	3,622,185	712,453	
Hanover,	6,469		6,469	
England,	71,058,698	65,170,374	5,888,324	
Scotland,	3.807,473	1,837,014	1,970,459	
Ireland,	12,429.186	590,240	11,838,946	
Gibraltar,	420.386	26,969	393,417	
Malta,	47,637		47,637	
British East Indies,	373,237	1,646,457		1,273,220
Australia,	33 289		33,289	
Cape of Good Hope,	106.172	36,041	70.131	
Mauritius,	37.508		37,508	
British West Indies,	3,993,392	947,932	3,045,460	
British Honduras,	301,917	197,232	104.685	
British Guiana,	623,719	19 125	604,594	
British American Colonies,	7,985,543	2,343.927	5,641,616	
France on the Atlantic,	17,869.431	23,899,076		6,029,645
France on the Mediterranean,	1,228,187	1,001,765	226,422	
French West Indies,	603,164	151,366	451,798	
French Guiana,	60,277	47,775	12,502	
Miquelon and French Fisheries,		435		435

Countries.	Exports.	Imports.	In favor of U. S.	Against U. S.
French African Ports and Bourbon,	5,491 52 557		58,048	
Hayti,	1 298 713	1.391 580		92,807
Spain on the Atlantic,	780 863	274 708	506.155	
Spain on the Mediterranean,	1,229,403	1,016 551	212,852	
Teneriffe and other Canaries,	15 148	61 864		46,716
Manilla and Philippine Isles,	77 241	494 056		416,816
Cuba,	6 977 706	12,394 867		5 417.161
Porto Rico,	859 064	2,141,929		1,282.865
Portugal,	58,2 8	283.330		225,102
Madeira,	106 420	95 857	10,563	
Fayal and other Azores,	9,991	34 564		24,573
Cape de Verd Islands,	88 932	2.399	86,533	
Italy,	1,149.355	1,279 936		130.581
Sicily,	64 117	550 988		486,871
Sardinia,	647 102	287	646 815	
Trieste,	1,248 723	187 341	1,061,382	
Turkey,	127.242	577 710		450,468
Mexico,	692 428	746 818		54,390
Central America,	96 568	80 581	15,987	
Venezuela,	615.2 3	1,322 496		707.283
New Granada,	73. 60	156 654		83 594
Brazil,	2,943,778	7, 96 160		4,152,382
Argentine Republic,	176 089	241 209		65,120
Cisplatine Republic,	236.839	112 810	124,029	
Chili,	1,671 610	1,716 903		45 293
Peru,	227.537	396 223		168,686
South America generally,	5 .640	10.500	40,140	
China,	1,832 884	5,58 ,3 3		3,75 ,459
Asia generally,	267 241	308 481		41,237
Africa generally,	744 930	559,842	185,088	
West Indies generally	119.676		119 676	
Pacific Ocean,	360,074	44,588	315,486	
Sandwich Islands,		21, 39		21,039
Republic of Esquador,	27 824		27,824	
Total,	$158 648,622	146 545 638	38,192 899	26,089,915

THE TOTAL BALANCE OF TRADE FOR OR AGAINST THE UNITED STATES.

1844.	1845.	1846.	1847.
$111,200,046	117,254.564	121,691,797	158,648,622
108,435,035	114,646.606	113,488,516	146,545,638
$2,765,011*	$2,607,958†	$8,203,281†	$12,103,984*

*In favor. †Against.

ST. LOUIS HORTICULTURAL SOCIETY.

The second annual exhibition of this valuable institution opened on the 24th ultimo, and continued two days. The variety of specimens, though not extensive, were selected with taste and judgment, affording flattering anticipations of the future usefulness of the Society. Where so little attention has been bestowed on horticulture as in the vicinity of St. Louis, it will require many years of labor and enterprise, to enable the Society to compete with the exhibitions of older cities. But this should not lessen the interest of our citizens, for one would suppose that individuals of every class would feel a desire to witness the improvements that are made from year to year, and that this—supposing them destitute of all taste for that which is beautiful—would induce them to attend the annual exhibitions of the Society.

Horticultural Societies may be justly ranked among the benevolent institutions of the country. They are calculated to cheapen the price and improve the quality of both fruits and vegetables; and more than all, to improve the taste and refine the moral tone of society. These remarks may be considered as common-place, yet it would seem that they are not generally understood by our citizens, if we are allowed to judge from the indifference with which they regarded the late horticultural exhibition.

Those who labor for the public good make many sacrifices, while their rewards consist in the pleasing consciousness of having discharged their duties, and in the approbation of those for whom they toil; the former is certain, and more solid it is true—but they are justly entitled to the latter, and that community which neglects suitable occasions to countenance and encourage the public benefactor, in his benevolent undertakings, is chargeable with ingratitude.

A company of vagabond circus riders shall erect a pavilion in our city, and it is crowded to suffocation; and, perhaps, the street is thronged with those who cannot gain admittance—while, although occurring but once a year, a horticultural exhibition, of much that is rare and beautiful, possesses little attraction when brought in competition with the stale jests of the clown and the ring-master.

We trust, however, that these considerations will not discourage our worthy horticulturalists. They are engaged in a good work, and if they persevere they *must succeed* in producing a revolution in the general taste of the community, as well as in promoting the comfort of all classes.

MINERAL DISCOVERIES IN MISSOURI.

Editors of the Western Journal:

Following the plan of previous communications, I desire in this to call your attention to the description of minerals in this part of the country, so far as they have come under my observation.

The discovery of mines are often accidental. One of this kind was made the other day by myself and Mr. Calvin Keith, of St. Louis. We were making one of those excursions commonly called in this country "*Prospecting*," when our attention was suddenly arrested by something for which we were not looking, nor should have dreamed of looking for in such a location. Our discovery proved to be pure Galena, or sulphuret of lead; its location is near Caledonia, among the primitive rock, known as *Porphyry Granite*, associated with the rock, and accompanied with the sulphate of Barytes.

I am a practical miner, or at least have had considerable experience in mining, and consider the *location* of this mine very remarkable; never meeting it in my own mining operations, nor having heard of it being found in such locations in

this mining region by others. The lead is of the purest quality, and I think will yield eighty-five per cent. As the discovery is new, the extent of the mine is a matter of conjecture. I would remark, however, that according to Dr. Ure, Galena as it occurs in the primitive formations in Europe, contains more silver than that of calcareous formations.

I have also recently discovered Cobalt near Caledonia, accompanied with Manganese Ore, along with the yellow sandstone rock. The quantity of this ore is yet unknown. The quality is apparently very pure. It is well adapted to the manufacture of zaffre, smalts, &c.

In a late tour through the country I have discovered Manganese Ore and Black Wad in quantities. These are pronounced to be of good quality. They are found in the western edge of Cape Girardeau county. I have also discovered Manganese Ore in the southern part of St. Genevieve county, which is very extensive and of the purest quality. It is located about twenty-one miles from the Mississippi river.

There has been some tin discovered near Caledonia, accompanied with quartzose felspar, but not in any workable quantity. Many other minerals have been discovered in this neighborhood, but it is not known yet what they really are. I will speak of them at some future day.

Caledonia, May 12, 1848. F. WOOLFORD.

ORIGINAL POETRY.

LINES TO MISS GEORGIA W——.

BY HENRY F. WATSON.

I PRAY thee, fair lady, no longer accuse
The friends who admire thee of flatt'ry profuse;
If they look, they must feel; if they feel, they must speak,
Though unbidden it bring the deep blush to thy cheek.

In the far-distant realms of the East, we are told,
There are beings who worship the sun more than gold;
But fore'er would they turn from the light of those skies,
Could they catch but a ray of the light of thine eyes.

Then while the poor heathen is dazzled and won,
And looks with delight at the rays of the sun,
Deny not to us the one blessing we prize
Of bowing beneath the sweet light of thine eyes.

Other lights are around us, above and below,
And we heed not their rays; but the soft, witching glow
That lurks on thy cheek, and distils from thine eyes,
Is sweeter by far than the lights of the skies.

Then a toast to the light of the eyes that outshine
The bright orbs of the Heav'ns, and the gems of the mine,
And a health to her, who, though caress'd and belov'd,
Is with gentleness, kindness, and modesty cloth'd.

LINES TO MISS ——

BY T. F. RISK.

Thou art a pure and noble creature,
With eyes of fire and lips of dew,
In whose fair form confiding Nature
Has thrown her brightest gems to view.

Thy voice is like sweet music floating
In air, at midnight's lonely hour,
When twinkling stars in Heaven are gleaming,
And sighing zephyrs kiss the flower.

Now 'tis heard in deep pathos gliding
Like music from the spheres above,
Now gentle, gay, fond and confiding,
In accents musical with love.

Thy smile is like the blush of morn,
When sunbeams sip the dews of night;
Thy laugh more sweet than hunter's horn
As first it greets the morning light.

When thus I see thee in thy brightness,
And smiling forms around thee glide,
Thou seem'st to be an Angel's likeness
Lingering o'er life's restless tide.

Farewell! I give this parting sigh
In memory of other scenes,
When the pulse of Hope beat warm and high,
And Life was seen through brighter dreams.

A SCRAP FROM THE EDITORS' TABLE.

Our life is two-fold.—Byron.

Our existence is three-fold: the impressions of the present are assimilated with our mental and moral natures; while memory and hope conjoining, extend the province of man to little less than infinite.

In our rapid and resistless speed on the wing of time do we bear along with us these captive impressions; or does the mind leave the subjects of its conquest in the occupation of their respective places, and expanding as it proceeds, add each new acquisition to its former dominion? Be this as it may, the impressions of the present are incorporated with those of the past; and are not the less permanent because the objects that made them may have perished from the earth. And thus this mental dominion of man is peopled with the images of forms which have ceased to exist in the material world. Nay more, the thoughts and affections which pertained to the beings of the past are also impressed upon our mental and moral natures; and thus rescued from oblivion, survive the corporeal existence of those from whom they emanated.

But still these images of the material world—as also those of thought and affection—adhere to time and place, and retain all their former relations to the past. Has the form of one whose love constituted our highest delight faded from our vision, and its substance returned thither whence it came; and do we desire to refresh our hearts at the pure fountain from which in times past we drank deep draughts of pleasure—we return to the time, the place, and the circumstances which called forth some unwonted demonstration of affection; and then, although long since dried up, the living fountain is again opened; and as the gentle showers of heaven descending on the withered plant, causeth it to rejoice—so do the consecrated impressions made by beings which have ceased to exist, revive our sympathies; and wrapped in the pleasures of the past, we escape for a season from the evils of the present.

Then, truly, the past is ours: and we are permitted even in our present state of existence to draw both pleasure and instruction from beings whose material forms have been dissolved into their original elements.

The future, also, that illimitable space where dwell our hopes—that Eden of desire—that better land, abounding in every good that fancy can devise, is ours. Had we not free ingress into this boundless region, whither could we escape from present ills? Or who would toil, did Hope promise no reward beyond the present hour? Did not the anticipations of the future mingle with our present enjoyments, they would no longer afford delight—and hope failing, life itself would cease.

ST. LOUIS HORTICULTURAL SOCIETY.

THE Society having resolved to hold exhibitions at each stated meeting, to-wit: On the first Saturday in each month during the year, and that there shall be a general Spring Exhibition in May, and a general Fall Exhibition in September, they offer the following *schedule of premiums for the year* 1848:

FLOWERS.

For the best variety of	Camellia Japonicas,	$3 00
" " "	Azaleas,	2 00
" " "	Pelargoniums,	2 00
" " "	Fuschias,	2 00
" " "	Hardy Roses,	2 00
" " "	Perpetual Roses,	2 00
" " "	Cactæ,	3 00
" " "	Dahlias,	2 00
" " "	Chrysanthemums,	2 00
" " "	Carnations,	2 00
For the best collection of Green House plants,		10 00
For the best display, through the season, of Flowers, (hardy) cultivated in the open air,		3 00
For the second best do.		2 00
For the best Parlor Boquet, at Spring and Fall Exhibitions,		2 00
For the best Hand Boquet at do.		2 00

FRUITS.

For the best specimens of Strawberries, (not less than one quart)	5 00
For second best specimens do. do.	4 00
For best specimens of Cherries, (not less than one quart,)	3 00
For best specimens of Apricots, (not less than half a peck,)	3 00
For best specimens of Raspberries, (not less than one quart,)	2 00
For best specimens of Plums, (not less than one quart of each variety,)	4 00
For best specimens of Nectarines, (not less than half a peck,)	3 00
For best specimens of Peaches, (not less than half a peck,)	6 00
For second best do. do.	4 00
For best specimens of Apples, (not less than half a peck,)	5 00
For second best do. do.	3 00
For best specimens of Pears, (not less than half a peck,)	5 00
For best specimens of Quinces, (not less than half a peck,)	2 00
For best specimens of foreign Grapes, (not less than 4 bunches,)	5 00
For best specimens native do. do.	5 00
For best specimens of Gooseberries, (not less than a pint,)	2 00
For best specimens of Currants, (not less than a quart,)	2 00

WINE.

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For second best specimen do. do.	20 00
For best specimen of native Wine, (in a single bottle,)	5 00

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For best specimens of Celery, (not less than two bunches of three heads,	2 00

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II. No premium will be awarded in cases where there is no competition, unless, in the opinion of the committee, the articles are worthy of it.

III. The articles offered in competition, must be the production of the State of Missouri, or of the State of Illinois, and the result of the cultivation of the person exhibiting the same.

IV. Every article, so far as it is possible, must be accompanied by its proper name, and that of its producer; and the latter shall state, (if required by the committee,) in a satisfactoiy manner, any peculiarity of soil, situation or treatment, which attended the production.

V. No Flower, Plant, Fruit or Vegetable, shall be entitled to a premium, unless it possesses points of superiority; and the committee have the discretionary power of withholding prizes, if, in their opinion, the articles exhibited do not merit them.

VI. Every person exhibiting *Wine* for a premium, shall produce evidence, satisfactory to the Committee, that the wine exhibited is the product of the year 1847, and that he has manufactured a quantity of the same of not less than one barrel.

VII. Every person exhibiting a fruit for a *name*, will be required to accompany the same with a statement of the manner of its *origin* or discovery, and its local appellation.

VIII. Any person to whom a prize shall be awarded, whether in money, plate, or horticultural publications, may receive either, of like valuation, at his option.

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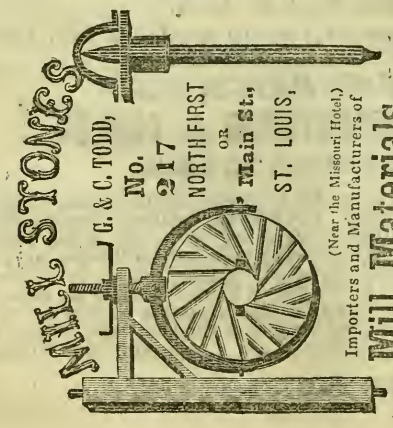

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4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

JULY, 1848.

VOLUME I. NO. VII.

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OF

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THE

WESTERN JOURNAL.

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ART. I—ARTIFICIAL AGENTS OF EXCHANGE.

In the last number of the Western Journal, we endeavored to show that although the whole civilized world recognize money as the representative of all other commodities, yet this recognition has reference only to its functions as an agent of exchange, and that its specific value is the subject of agreement between the parties to every transaction. We also noticed the constant tendency of money to accumulate at the great commercial emporiums, and the advantages which this accumulation give to those who reside at or near those places; and having made a practical application of these principles to the economy of the country, we now propose to examine the subject of *credit as an agent of exchange.*

No topic is, perhaps, more familiar to the people of this country than that of credit; yet, when we attempt to trace out its effects, and consider the subject with regard to all its bearings upon the condition of a people, we perceive at each step as we proceed, that it becomes more intricate and difficult of apprehension. Credit may be regarded as absolutely essential to the existence of society; for, without trust or confidence between individuals, no social compact could have been formed in the beginning, nor could society exist even at the present day. If an individual is employed to labor for but one day, he must either credit the employer until the labor is performed, or the employer must pay in advance, and credit the laborer until he executes his work. Hence, credit is the result of necessity, and must have preceded all laws designed to enforce the rights of the creditor; and in cases not induced by necessity, the inference arises that it was originally based upon the moral character of the individual. The introduction of money as an agent of exchange, did not, nor could it obviate the necessity of credit, for both are necessary to the advancement of civilization. The same functions, although differing in power, are common to both. The credit of an individual must necessarily be limited and local, and he who holds the obligation of another can turn it to but little account where the debtor is

unknown; but he who holds money is in some sense the creditor of all mankind. From the fact that a very large portion of the business of every community is carried on through the agency of credit, we are apt to conclude that were credit to cease in the ordinary transaction of buying and selling, the number and amount of exchanges of property would be diminished to an extent equal to the whole amount of the credit transactions; but this result would not follow as a necessary consequence, for it must be borne in mind, that although a commodity may be exchanged for credit, yet this is but the inception of the transaction which is not complete until the credit is liquidated; therefore, in local transactions, it requires, in the end, as much money to effect any given number and amount of exchanges upon credit as would have been required, had no credit intervened. Hence, although the money value of property is occasionally affected by the increase or diminution of credit, yet if the average price for a series of years could be ascertained, we imagine that it would be found to have been but little affected by the amount of credit which had obtained. For, as the common transactions of buying and selling on credit do not directly increase the volume of useful commodities, the amount of money in the country bears the same relation to the amount of property after the exchange, as it did before. Excessive credit, founded upon a spirit of speculation, may raise the price of property for a time, but this advanced rate can not long continue; for the necessity of completing the transactions by liquidating the credits with money, brings the property again to its money value, and the necessity of forcing it upon the market, generally depresses it below the average standard, until the excessive credit is liquidated. Owing to the revulsions consequent upon a redundancy of credit, many conclude that credit is an evil, and opposing it as a system, advocate the policy of basing all transactions upon money. This we have shown to be impracticable, inasmuch as credit, to some extent, is essentially necessary to the existence of civilization. That many evils flow from a redundancy of credit cannot be denied; but we esteem it impossible to define the limits of credit upon any principle of political economy, or by legislative enactments, without doing violence to that free exercise of individual action which is so necessary to both individual and social prosperity. We can imagine but two ways of diminishing the evils of credit: the one by improving and elevating the moral condition of society, and the other by diversifying labor so as to bring the consumer and producer as near to each other as practicable.

If a community, occupying a territory of moderate extent, produced all or nearly all the commodities necessary for its own consumption, there would be little danger that credit would become so much expanded as to produce any material revulsion; but in proportion as the distance at which the exchanges are made is increased, the evils of credit increase also; for the necessity of sending the money out of the country to liquidate balances abroad, disturbs the relation between money and property at home. The former becomes dearer, and the

latter cheaper, and consequently, the difficulty of liquidating the *internal* debt is increased, and a revulsion ensues as an inevitable consequence. The individual who purchased an article of property on a credit at the price of one hundred dollars, must now sell it at fifty dollars, and if he happens to owe half the amount that his property was worth in money, a few months before, and he cannot obtain indulgence until the storm passes, he is ruined. Such consequences could scarcely happen in a community that is not indebted to distant countries—for in such case, if a portion of the community contract debts beyond their ability to pay promptly, yet, as the quantity of money remains the same, there is still a probability of selling their property at the value which it bore when the debts were created; and unless the debtor had been guilty of great folly or extravagance, he would be able to extricate himself and escape from absolute ruin. Hence, we are persuaded that by diminishing our foreign commerce, and producing all the appliances of comfort at home, we shall escape most of the evils incident to an extensive and liberal credit system.

Commerce cannot be carried on extensively at a great distance without the use of credit in some form or other, unless we return to the primitive system of barter; for if, in all cases, money was sent from one country to another to be exchanged for other commodities, it would be kept constantly *in transitu*, and become an article of commerce merely, instead of a circulating medium. By the use of credit in its various forms, very little money enters into foreign commerce, except for the purpose of liquidating balances that arise from over-trading—from failure of crops, depression of prices, or other causes of like nature; but some one or other of these accidents occur with sufficient frequency to give rise to a rapid succession of revulsions. For, as soon as the country has recovered from the effects of one, and begins to prosper, it is again flooded with foreign commodities exceeding in amount the ordinary means of paying for them.

Under ordinary circumstances, very little money enters into the commerce between foreign countries. Nor are the exchanges made by the barter of specific articles, but principally through the agency of credit, based upon the commodities to be exchanged. A merchant in New York purchases goods in Liverpool on credit, the shipper of American produce draws a bill upon his factor in Liverpool, and the New York merchant purchases the bill and remits it to Liverpool to pay for his goods, and thus the money remains at home to perform its proper functions in the internal trade of the respective countries. This looks well in theory and is doubtless the only system upon which foreign commerce can be extensively carried on. But in practice it is subject to many contingencies that are calculated to disturb the relative value of money and property. If, for instance, a large portion of the exports of the United States should consist of wheat; and if, by reason of an unusually large crop in Great Britain and the north of Europe, the demand for wheat should cease, an exigency would arise requiring the shipment of money to pay the balances due for British manufactures. This raises the price

of money in the United States—the drain commences in New York and other eastern cities—the banks contract their discounts to the merchant—money becomes scarce, and the price of produce depressed—the eastern merchant calls upon the merchant in the west for remittances, and the latter pressing upon his customers—the consumers—the drain of specie is established throughout the entire country, and the revulsion becomes complete. Its force and effect will, of course, be in proportion to the amount of specie required to supply the foreign demand. But, although the revulsion may not be so considerable as to ruin a great number of individuals, yet, whatever materially disturbs the relative value of money and property, is an evil—for it is calculated to disappoint the laborer in his just expectations, and while it discourages many from embarking in branches of industry calculated to improve the resources of the country, it excites a spirit of speculation in those who imagine that they possess sufficient foresight to turn the ever-varying and fluctuating prices of property to their own advantage. And finally, these revulsions seriously retard the progressive improvement of the physical and moral condition of society.

We have shown that under ordinary circumstances, the extension of credit does not materially affect the relative value of money and property. An exception to this proposition, however, is found in the case of banks of discount and circulation. Bank bills, circulating as money, and exchangeable at all times for the precious metals, increases the volume of circulation, and consequently raises the price of other commodities. If wisely managed, banks are capable of giving permanency to prices, by breaking the force of the revulsions which arise from the contingencies of foreign commerce; for as long as they possess the confidence of the bill holders, the specie which is drawn from their vaults is but little felt by the community. But it generally happens that either for the want of wisdom in the management of banks, or owing to speculative views on the part of those who control them, instead of giving permanency to the value of money, and sustaining the community against the shocks of revulsions, they are themselves the cause of frequent fluctuations in the value of money and property, and in struggling to sustain themselves, increase the disasters of the community.

Banks of issue tend to cheapen money, and if skilfully directed and thoroughly established in the confidence of all who may in any way be interested in their solvency, they afford to the country in which they are located decided advantages over those wherein no banks exist, provided there should be an extensive commercial intercourse between them. For, besides the advantages of cheap money which we endeavored to illustrate in the first part of this article,* they possess the power of raising and depressing prices at pleasure. The Bank of England, for instance, by raising the rate of interest or curtailing her discounts, can put down the price of our produce at pleasure. This she has frequently done in regard to the price of cotton; and by a simple resolution contained in a few lines,

*See page 291-2.

deprived this country of many millions of dollars which we should otherwise have received in return for that article. It was this power that rendered the bank of the United States so odious to the people of this country. Yet, notwithstanding the sacrifices which were made in putting it down, we are continually striving to place ourselves more and more under the influence of the Bank of England by extending our commerce with Great Britain.

Thus we have endeavored, through a series of numbers, to examine the principles which govern our foreign commerce, and to point out the many disadvantages to which we are subjected by reason of making our exchanges at so great a distance from home. And in the conclusion of the subject we propose to recapitulate the leading propositions, for the purpose of bringing the whole argument to the mind of the reader at one view. The following are the leading points which we have aimed to establish:

1st. That the great number of persons employed in effecting the exchange of commodities at so great a distance, reduces the number of producers, and increases the burthen, while it diminishes the profits of labor; and is, consequently, detrimental to both the moral and mental improvement of the industrial classes.

2d. That in addition to the enormous expenses incident to the transportation of the raw material to the manufacturer, and the cost of returning it in the form of manufactured articles for consumption, its exportation tends to impoverish the soil, and to reduce the country to a state of sterility.

3d. That money continually tends to accumulate at the centre of every commercial system, and by reason of its abundance and cheapness at that point, gives to those residing there an important advantage over those who reside at a great distance from it.

4th. That the physical geography and climate of a country, considered with reference to its relation to other parts of the globe, indicate the proper limits of its commercial system.

5th. That in accordance with the natural laws of commerce, its principal current should move from north to south, and not from east to west; and hence, the propriety and importance of establishing a separate and distinct commercial system in the Mississippi Valley.

6th. That foreign commerce increases the hazard to which credit is ever more or less liable.

7th. That banks add to the advantages which those residing at or near the great commercial emporiums otherwise possess; and finally, that the profits of labor in the United States, and the price of American produce, *are controlled by the Bank of England*, through the medium of our commerce with that country.

Our arguments upon these topics are especially designed for the agricultural classes, for it is upon them almost exclusively that the burthen, and ruinous consequences incident to foreign commerce, fall. The merchant, the carrier, and the manufacturer naturally feel but little interest in the subject, nor do they seem to

consider that a great distance between the consumer and producer is of any material disadvantage to them.

Considering agriculture as the foundation of all other pursuits, we placed it first in our list of subjects; still, practical agriculture has occupied but a very small space in our Journal. In considering the agricultural interest of the west, we felt but little encouragement to aid in the increase of its products—for the enlargement of the volume would only serve to lower the price until western produce would cease to pay transportation to market. This is a consequence understood by almost every farmer; and hence, instead of endeavoring to instruct the agriculturalist in his practical operations, we have aimed, mainly, to expose the disadvantages under which he labours by reason of his remoteness from market. Irrespective of political opinions, and without reference to any authority upon the subject of political economy, we have sought to establish our reasoning upon the principles of natural and social economy. We are fully aware of the difficulty of removing prejudices from the human mind. We know that many individuals are shackled by political opinions, and dare not give free scope to reason, lest light should shine upon their minds, and convince them of error. Still, we are inspired with a hope that our labors will occasionally fall into the hands of individuals who, like ourselves, are in search of truth, and who sincerely desire the advancement of the physical, social and moral condition of this great Valley. Such, we are assured, will give to our views a fair and patient investigation. Should they do so, and should they also coincide with us in opinion, then we hold that they are bound, as lovers of their country and their species, to join us as co-laborers. It is not sufficient that they simply approve; it is their duty to stand forth as advocates, and laying their own hands to the work, let them persevere until the rewards of western labor shall be commensurate with the unrivalled fertility of the soil, and other advantages which a benevolent Creator has bestowed upon this, the most favored region of the earth.

But we have been told that this is an agricultural country, and that the natural and legitimate pursuit of its inhabitants is farming. This is true, but it does not follow as a necessary consequence that we should neglect our mines and permit the boundless source of power which lies dormant in our vast coal fields to remain unemployed; or that we should not create a home market for our agricultural products, by diversifying labor. Again, we are told that men are not capable of performing as much labor in the west as in the east. If this should be true, still it is no argument why lobor should not be diversified here, as well as elsewhere. But we believe that it will be found, upon inquiry, that operatives in the manufacturing establishments of the west, work as many hours in the day, and perform as much labor here as in the east. We mention this for the purpose of eliciting from those who are engaged in manufacturing in the west, their opinion upon this subject, and we respectfully invite them to furnish us with the result of their experience and observations in regard to the physical capacity of operatives

in this country. And we furthermore invite every friend to the interest of the west, to afford us such facts in relation to the economy of manufacturing in this region, as they may possess. We feel no apprehension that either capital, skill or labor will be wanting, if we can show to the satisfaction of men that any given article of manufacture can be produced as cheap here, as in New England; for, this fact being established, it will require no argument to convince the most obtuse intellect that the manufacturer here possesses an advantage over him of the east, to the extent of the freight and charges, and this, of itself, would be as large a profit on most articles, as a reasonable individual could desire.

ART. II—A RAIL ROAD FROM THE ATLANTIC TO THE PACIFIC.

WHERE SHALL THE RAIL ROAD BEGIN ON THE ATLANTIC, AND WHERE SHALL IT END ON THE PACIFIC?

THE large addition recently made to our territory bordering on the Pacific, renders it highly important that our government should adopt and carry into effect some efficient mode of facilitating both commercial and social intercourse between its citizens dwelling on the shores of the two great oceans that bound the Republic on the east and west. The project of a railway to the Pacific, which a short time ago appeared so like the offspring of a disordered imagination, has already become a work of national necessity—for, in our opinion, there is scarcely a probability that we can retain our dominion west of the Rocky Mountains when that country becomes strong in population, unless we establish some mode of intercourse that will cherish a lively sympathy between the people of the east and the west.

The following communication from Lieutenant MAURY to the Honorable J. C. CALHOUN, upon the subject of a rail road to the Pacific, contains many facts which we think will be found interesting to our readers. We extract from the Merchants' Magazine:

NATIONAL OBSERVATORY, *March* 29, 1848.

DEAR SIR:—I have the pleasure of sending you, as you requested I would do, a chart showing the relative distances to Monterey and the Columbia river from some of the principal points on the Atlantic coast. I have added such other information as, in my judgment, is calculated to throw light on the interesting subject, as to the best route across the country for reaching, by rail road, the Pacific coast of the United States.

I am clearly of the opinion that a rail road, through the heart of the country to the most convenient point of our Pacific coast, is greatly more in accordance with the true interests of the United States, than any route by canal or rail road that

can be constructed across the narrow neck of land between North and South America.

A chief value of a rail road or canal consists in its collateral advantages, so to speak, by which I mean the advantages which the country and the people, in the vicinity of the improvement, derive from it; such as the increased value of land and property of various kinds.

The increased value which such property has derived from the rail roads and canals in the United States, exceeds, I suppose, the original cost of the works themselves. This, therefore, may be considered a permanent value attached to property of our fellow-citizens, which no reverse of fortune, no enactment of laws, nothing but a destruction of the works themselves, can ever destroy.

A canal between the two continents would not pass through the United States territory, and consequently the citizens of the United States would derive no such collateral advantages from it, nor her statesmen the prerogative of taxing such increased value for the revenues of the country; but they would derive them abundantly from a rail road running through the heart of the Union, and connecting its Atlantic with its Pacific ports.

In this fact is included one of the many reasons which induced me to favor a rail road across the country, in preference to a canal out of the country, for connecting the two oceans.

The question, therefore, is: Where shall the rail road begin on the Atlantic, and where shall it end on the Pacific?

Unfortunately, the present state of topographical information as to the several routes that have been proposed for reaching the Pacific by rail road, is not sufficient to afford a satisfactory reply to this question. I propose to consider it, therefore, only in a geographical and commercial point of view, leaving the final decision of the question to dydrographers and engineers after they shall have made the necessary examinations and surveys.

If we continue to increase our tonnage for the next two or three years at the rate of increase for the last two or three, the shipping of the United States will then exceed that of Great Britain, and the commercial supremacy will be ours, so far, at least, as the business of fetching and carrying is concerned.

If you will examine the accompanying chart, you will observe that I have drawn, *geographically*, the dividing line of commerce between England and the Atlantic ports of the United States. Any point in this line is equidistant from us and from England; consequently England is nearer to all places, including the ports of Europe, the Mediterranean, and of Africa north of the equator, which are to the east of that dividing line, and *geographically* speaking, therefore, can meet us on that side of it with advantage; whereas all places on this side of that line, including her American colonies, the West Indies, and the States of Central and South America as far as the equator, are, *geographically*, more favorably situated for commerce with the United States than with England.

Now it so happens that this dividing line crosses the equator at what may be considered the great thoroughfare of vessels trading to the south of it, whether they be English or American, or whether they be bound around Cape Horn or the Cape of Good Hope. The winds are such as to make this the common and best place of crossing for all such vessels.

Consequently, *geographically* speaking, the ports of Brazil, of the Pacific Ocean, China, and the East Indies, are as convenient to the Atlantic States of the Union as they are to England; and the merchandise of the two countries may be said to meet there precisely on equal terms.

Hitherto, the great channels of trade have led to Europe, yet, notwithstanding that the position of England is much more central than that of the United States with regard to Europe, (the vessels of the former making, in a week, voyages which it takes ours months to accomplish,) we have, under these disadvantages, never ceased to gain on our competitor, and are now about to pass her, with our ships, in the commercial race.

The coasts of Oregon and California are just beginning to feel the energy of American enterprise, and are fast filling up with our citizens. Where they go, there commerce will come. The peopling of these coasts will greatly enlarge the commercial limits of the United States; extending them from lines into a greatly elongated ellipse with its conjugate centres, one on the Pacific, the other on the Atlantic.

Having determined what port on the Pacific offers the most advantages for the commercial focus there, it will then be easy to project the major axis of this new commercial curve; for the line across the country which joins these two centres, will show, geographically, the best route for a rail road between the two oceans.

The shortest distance between two places that are not on the equator, or in the same longitude, is the arc of a great circle, included between them; and this arc appears on the chart as a curve. I have drawn such curves on the chart, and called them great circle routes, because they show the route by which a traveler may go from place to place by accomplishing the smallest number of miles possible, supposing he could follow a line through the air.

You will observe that the great circle, which shows the shortest navigable route between Chili, all the ports of Peru, Ecuador, Central America and Mexico, passes so near to Monterey, that if a steamer bound from Chili to Shanghae, in China, were to pursue the shortest route which it is possible to go, she would make Cape St. Lucas, in Lower California, and might touch at San Diego, Monterey, or San Francisco, by going less than 100 miles out of her way.

But if the point of departure were Panama, then it would be 1,000 miles nearer to take the great circle via California, than to follow the straight compass course by way of the Sandwich Islands.

Monterey or San Francisco, therefore, may be regarded as the great half-way

house on the commercial road between Pacific America and the Indies; and this route as the commercial circle of the Pacific Ocean.

It will be observed that Astoria, in Oregon, occupies by no means such a central position with regard to the commerce of the world.

The line, commencing on the Pacific coast midway between Monterey and the mouth of the Columbia river, and drawn to Philadelphia, I have called the dividing line of travel between Monterey and the mouth of the Columbia. It is so drawn through the country, that any given point on it is equidistant from those two places, so that a traveler who starts from any point to the south of this line is nearer to Monterey; but if he start from a point to the north of it, he is nearer to the mouth of the Columbia.

TABLE OF DISTANCES FROM THE ENGLISH CHANNEL.

To Boston (shortest navigable distance for steamers)	2,670 miles.
Boston, via Albany and the lakes, to Chicago,	1,000
Chicago, by an air line, to Columbia river,	1,650
Total,	5,320
From English Channel, via Philadelphia & Baltimore, to Monterey	5,100
" English Channel to Charleston, S. C., (by water)	3,360
" Charleston to Memphis (rail road)	510
" Memphis to Monterey (air line)	1,500
Total,	5,370

It thus appears that Monterey is quite as central to the European travel as is the mouth of the Columbia, with this advantage, however: the lakes are frozen up half the year, when the Columbia route is impassible; whereas if the travel from Europe come as far south as Philadelphia, Monterey then is the most convenient port. In truth, Chicago is quite as near to Monterey as to the mouth of the Columbia.

While Monterey is, therefore, altogether as convenient a halting-place as the Columbia river for travelers from any part of Europe to China, it has decidedly the advantage with regard to the travel from three-fourths of the States of the Union, from Brazil, the West Indies, and even from the Paific ports of South America.

Were a rail road constructed from Memphis to Monterey, passengers from Chili, Peru, &c., on arriving at Panama, would, instead of continuing on in the Pacific to California, save two or three days by crossing over to Chagres, taking a steamer thence to New Orleans, and up the river to the Memphis and Monterey rail road, and so across the country.

For this reason, therefore, the route to China, via Charleston or New Orleans, to Memphis, and thence to Monterey, would, for all the travel to the south of us,

be hundreds of miles nearer than the route up to Chicago and thence to the Columbia river; nearer for most of the States of the confederacy, and as near for the rest.

The harbors of San Francisco and Monterey are good, and easy of ingress and egress. The mouth of the Columbia is difficult both of ingress and egress. In 1846 Lieut. Howison, one of the most accomplished seamen in the navy, was wrecked in attempting to get to sea from that river. He chartered another vessel for himself and crew to get to Monterey, 600 miles; and though in sight of the open sea, and drawing but eight feet of water, he was detained there sixty-two days, waiting for an opportunity to cross the bar. He was wrecked where the Exploring Expedition found water enough to float a 74.*

Vessels in distress off the mouth of the Columbia river have been baffled in their attempts to enter, and finally, after sundry trials, have found themselves compelled to run down to the ports of California, where they are sure of getting an anchorage.

The rail road to the Pacific should terminate at that port which presents the most advantages for our future dock-yard and great naval station on the Pacific. That port is not the Columbia river, for the reasons just stated. Moreover, the mouth of that river will be overlooked by the English from the excellent ports of Vancouver's Island and the Straits of Fuca. While our crippled vessels should be standing off and on, waiting to get in, they would fall an easy prey to inferior British cruizers, which in safety could watch their movements from the Straits of Fuca.†

* "The Cadboro' anchored in Baker's Bay (mouth of the Columbia river) November 17, 1846, where we remained pent up by adverse winds and a turbulent sea on the bar until the 18th January. Her master, an old seaman, had been navigating this coast and river for the last eighteen years, and his vessel drew but eight feet water; yet in this long interval of sixty-two days he could find no opportunity of getting to sea safely. This is, in itself a commentary upon the dangerous character of the navigation of the mouth of the Columbia."—[Report of Lieut. Niel M. Howison, U. S. N., House of Reps., 30th Congress, 1st Session, Mis. No. 29.

"I lay at anchor in Baker's Bay, some three hundred yards inside the Cape, from November 17, 1846, until January 18, 1847; and although we were unfortunately destitute of barometer and thermometer, we had a good opportunity of observing, during these two winter months, the wind and weather. The heavens were almost always overcast; the wind would spring up moderately at east, haul, within four hours, to south-east, increasing in force and attended with rain. It would continue at this point some twenty hours, and shift suddenly in a hail storm to the south-west; whence, hauling westwardly and blowing heavy, accompanied with hail and sleet, it would give us a continuance of bad weather for three or four days, and force the enormous Pacific swell to break upon the shore with terrific violence, tossing its spray over the tops of the rocks, more than two hundred feet high. A day of moderate weather, with the wind south-east, might succeed this; but before the sea on the bar would have sufficiently gone down to render it passable, a renewal of the south-easter would begin, and go on around the compass as before."—[Ib.

† "A very snug harbor has, within a few years, been sounded out and taken possession of by the Hudson's Bay Company on the south-eastern part of Vancouver's Island. They have named it Victoria, and it is destined to become the most important British seaport contiguous to our territory. Eighteen feet water can be carried into its inmost recesses, which is a fine large basin. There is, besides, pretty good anchorage for frigates out side the basin. The company are making

Monterey and San Francisco are beyond the reach of such surveillance; moreover, they are in a better climate, and are midway our line Pacific coast. They are in a most commanding position. During the naval operations in the Pacific against Mexico, our men-of-war beat out of the harbor of San Francisco in a gale of wind, so easy is it of ingress and egress.

The harbors of California are convenient for, and are even now visited by, our whalemen. Columbia river is not. There is a fleet in the Pacific of 300 vessels, engaged in this business, manned by six or eight thousand of the best seamen of America.

In money and in kind they expend, annually, among the islands and ports of the Pacific, not less than one million of dollars. The facilities which a rail road to California would offer in enabling them to overhaul, refit, and communicate with friends and owners in New England, would attract this whole fleet there; and this vast amount of money would be expended in our own country and among our own citizens, instead of being disbursed, broadcast as it now is, over that wide ocean. As long as there are breakers and a bar at the mouth of the Columbia, there can be in that harbor no attraction for our whale ships.

The coast of California is a favorite place of resort for the whale. They come there to breed.

The chart has two small circles of a radius of 3,000 miles each: one drawn from the mouth of the Columbia, as a centre, the other from Monterey. The latter, from its facilities of ingress or egress, is in a geographical position to command the trade with all the places within these circles, except, perhaps, the ports of British and Russian America. For six months of the year, the difficulties in crossing the bar of the Columbia would place these places nearer to the ports of California by days, if not by weeks and months.

The chart also exhibits the geographical dividing lines of travel and of commerce. The broken line, through the Island of Japan, shows the dividing line of travel from London, by the overland route, to India, and from London through the United States, by rail road from Charleston, via. Memphis, to Monterey. The nearest route to London, from all places to the east of this line, is through the United States; but from all places to the west of it, the nearest route is through the Red Sea and across the Isthmus of Suez. These lines, as before stated, are all drawn without regard to time. They are mere geographical lines, intended to represent distance in *nautical* miles. Were the rail road across the country completed, and the lines drawn with regard to time, they might probably be extended a thousand miles or two further to the westward; for much of the distance to be

this their principal shipping port; depositing, by means of small craft, during the summer, all their furs and other articles for the English market at this place, which is safe for their large ships to enter during the winter season. They no longer permit them to come into the Columbia between November and March."—[Lieut. Howison's Report.

overcome by the overland route is by water, and there is much less rail road traveling by that ronte than there would be by a rail road across the United States.

A passenger can accomplish as many miles in two days by rail road, as he can in a week by water.

The other broken line shows the dividing line of travel between London via. the overland route, and this part of the country via. the Atlantic and Pacific Rail Road.

The continuous and most westerly line shows the dividing line of commerce between England, on the one hand, and our Pacific ports on the other, supposing the English ships to pass, as they have to do, the Cape of Good Hope.

This line exhibits many interesting facts, consequences, and significations. Among them, it shows that the United States are now in a position which will soon enable them, *geographically*, to command the trade of the entire east; and that, commercially speaking, our country is in the centre of the people of the earth, and occupies a position for trade and traffic with them which no nation that ever existed has held.

Hitherto, in all parts of the world, except Europe and the West Indies, the ships of the two great competitors on the ocean have met on barely equal terms. An American and a British ship met in India, China, New Holland, the islands of the Pacific, or the ports of South America. One was owned in London or Liverpool, the other in some one of our Atlantic ports. To reach home, they both had to pursue the same route and sail the same number of knots. But now that Oregon and California are *Americanized*, all of these ports are nearer; and the chief among them, as Bombay, Calcutta, Singapore, the ports of China, Japan, New Holland, Australia, Polynesia. and the islands of the east, many thousand miles nearer to the United States than they are to England.

TABLE OF DISTANCES BY SEA.

	To England.	*To ports of California.*
From Persian Gulf,	11,300	10,400
" Bombay,	11,500	9,800
" Calcutta,	12,200	9,300
" Singapore,	12,300	7,100
" Canton,	13,700	6,100
" Shanghae,	14,400	5,400
" Jeddo,	15,200	4,500
" New Guinea,	14,000	6,000
" N. W. point of N. Holland,	11,800	7,800
" N. E. " "	13,500	6,900
" New Zealand,	13,500	5,600

From Memphis, a centre point in the immense valley of the West, and one on the great natural and national highway from the Gulf to the Lakes, the distance, via. Panama and the Sandwich Islands, (the usual route,) to China, is 11,700

miles; but by the proposed rail road to Monterey and the great circle, thence to China, the distance is but 6,900 miles.

A rail road across the country, in this direction, would, therefore, it may be observed, shorten the present and nearest practicable route to China near 5,000 miles; it would place us before the commercial marts of *six hundred millions* of people, and enable us, geographically, to command them. Open the needful channels, unbridle commerce, leave it to the guidance of free trade, and who shall tell the commercial destiny of this country!

Rightly and wisely profiting by the advantages which are now opening to us, how long will it be before our sturdy rival will cease to be regarded as such, and when we shall have no competitor for maritime supremacy among nations!

From Monterey to Shanghae is 5,400 miles; midway between the two, and right on the way side, are the Fox or Eleoutian Islands, with good harbors, where a depot of coal may be made for a line of steamers; for the establishment of which, I understand, Mr. King, the Chairman of the Committee of Naval Affairs, is preparing a bill.

Coal has been found on the surface, at San Diego and San Francisco, and Vancouver's* or Quadra Island. Formosa and the Islands of Japan abound with the most excellent qualities of this mineral. Supposing the vessels to be put upon this line to perform not better than the "Great Western," and that the rail road from Charleston, on the Atlantic, be extended to Monterey, on the Pacific, you might then drink tea made in Charleston within the same month in which the leaf was gathered in China.

The passage from Shanghae, allowing a day for coaling at the Fox Islands, can be made in twenty-six days to Monterey, and thence to Charleston by rail road, at the English rate of forty miles an hour, in less than three days.

Hydrographical surveys, and topographical reconnoissances may show San Diego or San Francisco to be the best terminus for the great railway. I have spoken of Monterey merely from its *geographical* position. San Francisco is a better harbor, and has, in its rear, a more fertile country. But whichever of the three be adopted, the selection will not alter the point I have been endeavoring to establish.

A rail road from Charleston to Tennessee is already completed. Memphis is above the yellow fever region of the Mississippi Valley. It is on the great river and in a central position. A road thence would cross the head waters of the Arkansas, the Rio Grande, and the Colorado. It would facilitate the overland trade with Mexico, and perhaps be the principal channel of foreign commerce for her people.

Large amounts of bullion are annually shipped from Western Mexico, in British ships of war, for England. Owing to the route, and the uncertainties as to the

*Excellent coal has been found here. It is used by the English steamers, and is put on board at a mere nominal price.

time when a vessel of war may come for it, it may be assumed that this bullion does not reach England for eight or ten months after it is taken from the mines; during all of which time it is of course idle. Moreover, it pays a freight of 2 per cent. to the British officer and Greenwich Hospital for conveying it in one of Her Majesty's vessels. Now all this bullion would come, as fast as it is taken from the mines, over this road, and would perhaps be coined in our own mints instead of those of Europe.

This route, as compared with one to the Columbia river, is most convenient for a large portion of the citizens of Pennsylvania, all of Delaware, Maryland, Ohic Indiana, Illinois, Missouri, and all of the States to the south of them; and, considering the present routes, quite as convenient to the people of New England as is the proposed route to the Columbia.

Besides, this last will be obstructed by snow and ice in the winter, the other never. Therefore, California offers the most convenient terminus for the commerce and business of all the States, and the most desirable one for the purposes of the general government.

There is a line of steamers already in operation from Valparaiso, Lima, Guyaquil, and the intermediate ports to Panama.

Under Mr. King's bill of the last Congress, contracts have been made for another line to connect with this, to run to the mouth of the Columbia, touching at Monterey or San Francisco. From Panama to China, via Monterey, is 8,600 miles, and from Panama by water to Monterey is 3,200 miles. Thus it will be observed that the steam communication has already been provided for more than one-third of the distance from Panama to China.

A rail road to Monterey, and a line of steamers thence to China, would place our citizens only half the distance that they now are, and without such rail road must continue to be, from Japan and the Celestial Empire.

The most equitable location of a great national railway, to be constructed for the convenience of all the States, from the banks of the Mississippi to the shores of the Pacific, would be along the line which divides the United States territory west of the Mississippi into two equal parts. The main trunk would then be in the most favorable position for receiving lateral branches from all of the States hereafter to be formed out of that territory. But the ports on the Pacific, and the character of the route, do not admit of such a location.

I have endeavored, as you suggested, to determine the geographical centre of the present *States* of the confederacy.

By one method, Memphis is as near that centre as may be; by the other it falls in Kentucky.

A line drawn diagonally across the States, from the north-east corner of Maine, to the south-west corner of Texas, intersects another from southern Florida to the north-west corner of Iowa, a few miles from Memphis; and Memphis is

just about half way between the mouth of the Mississippi and the head of the Lakes, counting from Lake Michigan.

But if we take two other lines: one dividing the territory comprehended within the States from north to south, the other from east to west, they will cross each other in Kentucky, and about midway a line between Nashville and Louisville. These are the two geographical centres of the States of the Union.

Now, if we take a point about midway between Memphis and Louisville, we shall have what, for practical purposes, may be called the territorial centre of the *States* of the Union. I have marked this point A, on the chart. It is near the mouth of the Cumberland. The centre of population is about the same parallel, but considerably to the eastward.

The great circle from this territorial centre to San Francisco, crosses the Mississippi just above the mouth of the Ohio, and crosses the edge of the Kansas valley. The distance of San Francisco from the Mississippi at this point, is 1,560 *nautical*, or 1,760 statute miles.

Were the country equally favorable, this would certainly be the most advantageous, because it would be the most convenient route for all the States. It will be the business of the topographer, the engineer, and the hydrographer on the Pacific, to determine the most feasible line, and the precise location of this great national highway.

There is, however, another light in which this subject should be considered. A rail road to the Pacific is eminently a military road; and in the selection of a route, and a terminus for it, an eye should be had to its bearings as well to the common defence as to the general welfare.

Vancouver's Island abounds in excellent harbors. Coal of superior quality has recently been found there, cropping out in great quantities on the surface. The English steamers on that coast use it, and pronounce it excellent. The *Cormorant* procured it at four shillings per ton, and took specimens of it to England. It is so accessible that the Indians mine it, and deliver it on board the Hudson's Bay Company's steamers at a mere nominal charge.

That island is in a position which enables the power that holds it to command the Straits of Fuca and the mouth of the Columbia more effectually, even, than Cuba, in the hands of a rival, would control the mouths of the Mississippi. By treaty, Vancouver's Island belongs to the English. In view of these facts, no one with a military eye in his head would think of fixing the terminus of the great national highway, through which we aim to control the trade of the east, under the very guns of our rival. Vancouver's Island enables England to command both the Straits of Fuca and the mouth of the Columbia.

The mouth of that river can never become a naval station of much importance to us. It is too near Vancouver's Island, which is to be the Portsmouth of England in the Pacific. Its approaches are exposed and difficult, its egress dangerous. It is too far from the ports of California, and the coast to be defended.

San Francisco will probably be the centre of our naval operations there. It is in a central, and therefore commanding position. It offers many facilities which Astoria does not. Suppose Cuba belonged to Great Britain, and we were just beginning with a system of national defences for our Atlantic coast: it would be quite as reasonable to expect our ships from Pensacola to pass Havana and protect the coasts of New York, in a war with England, as it would be to expect them to come from the Columbia river, overlooked as it will be by the English from Vancouver's Island, and give security to the ports and coasts of California.

Our Pacific coast is about 1000 miles in length. San Francisco is midway between its southern boundary and Vancouver's Island, and, in a military point of view, is in a position to command eight hundred of the thousand miles; whereas Puget's Sound and Columbia river, owing to the close proximity of Vancouver's Island and the dangerous bars of the river, are incapable of commanding so much as their three marine leagues each.

Respectfully, &c., M. F. MAURY.

Hon. JOHN C. CALHOUN, *U. S. Senate Chamber.*

ART. III—MEMOIR OF A TOUR TO NORTHERN MEXICO,

CONNECTED WITH COLONEL DONIPHAN'S EXPEDITION IN 1846 AND 1847.
BY A. WISLIZENUS, M. D.

THIS is the title of a work of about 140 pages, printed by order of the Senate of the United States.

Since the acquisition of New Mexico and California by the late treaty of peace, the entire country between our present settlements and the Pacific Ocean, is to be viewed in a new and different aspect from that which it before presented. The means of facilitating and rendering more safe the intercourse between the States and our distant settlements, are to be considered; new sources of trade and industry are to be opened; and the broad space between our present settlements and the Rocky Mountains, and thence to the great Ocean, although now considered a desolate waste, is to be occupied by the white man—not in continuous settlements as in the old States; but the agriculturist following up the tributaries of the great rivers, will occupy the vallies; and the herdsman with his flocks occupying the plains, resources will be found to support an immense population, which will in many respects, constitute a peculiar and important national feature.

Henceforth Missouri is not to be regarded as a frontier State; but, possessing within her own limits all the elements of a mighty empire, she is destined to become the heart of the republic.

But let us proceed with our author. In reviewing his labors we shall omit the many interesting incidents and details connected with his journey of several thousand miles by land and water, and groupe into as small a space as practicable, that class of facts which indicate the physical resources of the country through which he traveled, always permitting him to speak for himself where brevity will permit

The objects of his tour are explained in the following paragraph:

"In the spring of 1846, I left St. Louis, Missouri, with the intention of making a tour through northern Mexico and Upper California, and of returning in the fall of the next year. The principal object of my expedition was scientific. I desired to examine the geography, natural history, and statistics of that country, by taking directions on the road with the compass, and by determining the principal points by astronomical observations. I made a rich collection of quite new and undescribed plants. I examined the character of the rocks, to gain insight into the geological formations of the whole country. I visited as many mines as possible, and analyzed some of the ores. I made barometrical observations, to ascertain the elevations above the sea. I kept meteorological tables, to draw general results from them for the climate, its salubrity and fitness for agriculture, and took memoranda in relation to the people—their number, industry, manners, previous history, &c. The intention, in short, for which I started, was to gain information of a country that was but little known. All that I can, therefore, offer the public in the following pages is, what I have sought myself—a collection of matters of fact, related not in the exciting description of an historical novel, but in the plain narrative form of a journal, through which the incidents and adventures of the trip are but occasionally interwoven."

The author describes the country between the western line of Missouri and the crossing of the Arkansas river, a distance according to his account, of some 350 miles, in the following summary:

"Council Grove forms, as it were, a dividing point in the character of the country east and west of it. The country east of it is formed of prairie, with slight ascents and descents—constant undulations, as I might call them; some times larger and fuller, resembling the waves of the ocean, which no doubt once covered those plains, and partly moulded their present form. Of those slight undulations, the barometrical measurements will give evident proof. Big Blue camp was 1,020 feet elevated above the sea; Council Grove is 1,190; and the highest intermediate point is 1,420 feet, on the divide between the waters of the Osage and the Neosho or Grand River. This eastern portion is well watered, and along the water courses sufficiently timbered to sustain settlements. The soil is generally very fertile, and, to judge from the higher elevation, more exempt from fevers, the plague of the bottom land. Let us take a prospective view now of the country west of Council Grove. A short distance west, the country rises

suddenly to the elevation of 1,500 feet, and ascends gradually towards the Arkansas to 2,000 and more feet above the sea. The intermediate country yet exhibits sometimes the short, wave-like form of the eastern portion, but oftener it resembles already the plateaux or high plains between the Arkansas and Cimarron, those representatives of the calm, immense high seas, where the horizon extends further, the soil becomes dryer and more sandy, the vegetation scantier, timber and water more rare. The country between Council Grove and the Arkansas forms the transition to the sandy plains on the other side of the Arkansas; the soil is generally less fertile than in the eastern portion, but all along its water courses (as Cotton-wood Creek, Little Arkansas, Walnut Creek, Ash Creek, Pawnee Fork, and along the Arkansas,) settlements might succeed, though they would have to depend more on stock raising than agriculture."

From the western line of Missouri to Council Grove, a distance of about 123 miles, the country has also been described by others as of rare fertility, and from its elevation promises to be more healthy than the lower portions of the Valley of the Mississippi. It is true that there is a scarcity of timber, but this objection is generally found to be less and less felt as the settlements in prairie regions increase. Some forty miles west of Council Grove the author discovered bog-ore in the prairie, and a great deal of yellow, brown and bluish sandstone, combined with the hydrated oxyde of iron, which he calls ferruginous sandstone." We extract from page nine, the following description of the rocks near the Arkansas river:

"About three miles north of the Arkansas, there is a slight chain of hills in the prairie, mostly overgrown with grass. Attracted by a prairie grave on this elevation, made of a heap of rocks, I was astonished to find these rocks not to be lime or sandstone, but to resemble a volcanic formation; and upon further examination, I discovered the same rock *in situ*, cropping out at the southern end of the hill; the rock is a porous, red, black, and yellow mass, as if earthy substances containing iron had been baked together by strong fire. It shows great similarity to the burnt rocks in the cretaceous formation on the Upper Missouri, specimens of which the late Mr. Nicollet brought back from his expedition; but the latter are blacker and lighter. The character of the rock, as well as of the surrounding country, excludes the idea that it was thrown up from the depths by volcanic action; but it is more likely that it was produced by pseudo-volcanic fires, or subterraneous fires near the surface, ("Erdbraende," as the German geologists call it,) such as are generally called forth by spontaneous or accidental ignition of underlying coal fields.* When, in the evening of the same day, I

* John Bradbury, (Travels in the Interior of Amerioa in 1809, '10, and '11; Liverpool, 1817,) p. 153, says: "I observed a vein of fine coal, about eighteen inches thick, in the perpendicular bluff, below the fort—(the Missouri Fur Company's Fort, on the Upper Missouri, above the Mandan village.) On showing some specimens of

found the same formation again on Pawnee Rock, it was in so intimate connexion with the ferruginous sandstone, that it left no doubt in my mind that this scoriaceous rock is the product of action of such fires upon the ferruginous sandstone."

From these indications, it is not improbable that there is an extensive coal-field, stretching in a southern direction, from the Missouri to the Arkansas river, and that iron will also be found in the same region. Should this be the case, these minerals will compensate, to a considerable extent, for the scarcity of timber, and in time, become important sources of wealth to the country. The first notice taken of the ferruginous sandstone is at a point about fifty miles west of Council Grove, and it frequently occurs from this place to the crossing of the Arkansas river, a distance of about 200 miles. At one place within this distance, about thirty miles below the crossing of the Arkansas, the author discovered a bed of *marl* in the bluff of a creek. He says, "the bluffs consist of common sandstone below, and a white, fine grained *marl*, without fossils, above it; this marl also resembles some specimens brought by Mr. Nicollet from the Upper Missouri and belonging to the cretaceous formation."

After crossing the Arkansas, we enter into a region totally destitute of every thing that can give the slightest value to the country. We extract the author's description of this part of the road, and also his reasoning upon the cause of the *mirage:*

"*June* 11.—Traveled about eighteen miles before we halted, without seeing wood or water. Buffalo have entirely disappeared; not even Buffalo chips, the usual substitute for fire wood, were to be seen. The high plain between the Arkansas and Cimarron, whose elevation above the sea is about 3,000 feet, is the most desolate part on the whole Santa Fe road, and the first adventurers in Santa Fe trade stood many severe trials here. Within the distance of sixty-six miles, from the Arkansas to the lower springs of Cimarron, there is not one water course or water pool to be depended upon in the dry season. The soil is generally dry and hard; the vegetation poor; scarcely any thing grows there but short and parched buffalo grass and some cacti. Though the horizon is very distant, there is no shrub or tree to fix your eye upon, and no other game attracts your attention except once in awhile a wild antelope, which is apt to allure you to a useless chase. But, for one quality this desert is distinguished. When your patience has been worn out by the long ride, and by the monotonous sameness of the

it to some of the hunters in the fort, they assured me it was a very common substance higher up the river, and that there were places on which it was on fire. As pumice is often found floating down the Missouri, I have made frequent inquiries of the hunters if any volcano existed on the river or its branches, but could not procure from them any information that would warrant any such conclusion. It is probable, therefore, that this pumice stone proceeds from these burning coal beds."

scenery; when your lips are parched from thirst, and a friend at your side, in cruel consolation, reminds you of the luxuries of cultivated life—to all of which you would nevertheless prefer a refreshing draught of cold water—there emerges in the plain before your astonished eyes, a beautiful lake. Its surface looks like crystal; the wind moves but slightly the wide sheet of water; but the faster you hurry forward, the nearer you approach it, the sooner you will be disenchanted; the lake disappears again before your presence; and when you arrive at the very spot, you perceive nothing but the same hard, dry, parched soil, over which you have traveled all day. This is the celebrated "*mirage*," (*false ponds; fata morgana.*) Though it also appears in other parts of the prairie, it is nowhere so common, so deceptive, and so well developed, as here. In examining the causes which produce it at this high plain, I have arrived at the following conclusions:

"The phenomenon of mirage requires—

1. A wide high plain, with extensive horizon, and but slight undulations of the ground.

2. A dry, hard ground, either quite barren, or but coated with parched and isolated vegetation, like the short buffalo grass.

3. Dry and warm weather, with a clear sky. On such days, and less in the morning and evening, but rather when the sun has the most power, mirage is the most frequent and the plainest.

4. A slight hollow in the undulating plain, however insignificant it may be, producing a background. Where this low background is interrupted by the horizon, on that place the mirage grows more dim and disappears entirely.

5. The distance of several miles from the stand of the observer. The nearer one approaches, the more indistinct becomes the mirage, and it changes at last into a glimmering of the air, such as can be seen on hot summer days upon dry, solid, macadamized roads, from which the rays of the sun are powerfully reflected.

6. The mirage is, therefore, the effect of a strong reflection of the rays of the sun from the ground, seen out of a certain distance, on certain localities.

7. That objects, being near the mirage, as trees, animals, men, &c., are seen double, can also be explained by the following law of reflection.

"When two strata of air, one of common middle temperature and density, and the hotter, meet together, an observer, standing also in a common temperature and looking at an object near where the two strata meet, will see that object double, directly in the stratum of common air, in which he stands himself, and indirectly by reflected light in the hotter stratum. The direct image will stand upright; the reflected one inverted."

In following the author from the Arkansas to the Colorado, the principal branch of the Canadian, a distance of about 250 miles by the road, we find nothing to authorize the opinion that the country is of scarcely any value for either agricultural or grazing purposes. He says that

"the Rio Colorado is a clear mountain stream, with fine grass and good soil; cedars grow on the neighboring hills, and further down on the creek. A settlement would succeed very well here."

The first settlement on the route is at Rio Mora, about sixty miles from the Colorado, and is thus described:

"About eight miles from Wolf creek we reached the *Rio Mora*, a fine mountain stream, and a charming valley was spreading out before us. Soil, grass, and water are excellent; the surrounding mountains furnish an abundance of pine, and protect the valley at the same time from severe cold in the winter. Stock increases here very fast; nevertheless, there are very few settlements at present in this part of the valley, because they are constantly exposed to the depredations of Indians. We stopped a short time at the first settlement, belonging to Messrs. Smith and Wells. The house (quite a new sight to us since we had left Missouri) was built in the Mexican fashion of sun-dried bricks or *adobes*, and with a flat roof. Delicacies of milk, butter, and pie were offered to us, and of course not refused."

From here it is about ninety miles by the meanderings of the road through the mountains to Santa Fe. And having arrived at Santa Fe, the author gives an account of the geography, climate, history, statistics, &c., of the country, from which we make the following copious extracts:

"New Mexico is a very mountainous country, with a large valley in the middle, running from north to south, and formed by the *Rio del Norte*. The valley is generally about twenty miles wide, and bordered on the east and west by mountain chains, continuations of the Rocky Mountains, which have received here different names, as Sierra Blanca, de los Organos, oscura, on the eastern side, and Sierra de los Grullas, de Acha, de los Mimbres, towards the west. The height of these mountains south of Santa Fe may, upon an average, be between six and eight thousand feet, while near Santa Fe, and in the more northern regions, some snow covered peaks are seen that may rise from 10,000 to 12,000 feet above the sea. The mountains are principally composed of igneus rocks, as granite, sienite, diorit, basalt, &c. On the higher mountains excellent pine timber grows; on the lower, cedars, and sometimes oak; in the valley of the Rio Grande, mezquite.

"The main artery of New Mexico is the Rio del Norte, the longest and largest river in Mexico. Its head waters were explored in 1807 by Captain Pike, between the 37° and 38° north latitude; but its highest sources are supposed to be about two degrees farther north, in the Rocky Mountains, near the head waters of the Arkansas and the Rio Grande, (of the Colorado of the west.) Following a generally southern direction, it runs through New Mexico, where its principal affluent is the Rio Chamas from the west, and winds its way then in a southeastern direction through the States of Chihuahua, Coahuila and Tamaulipas,

to the Gulf of Mexico, in twenty-five degrees, fifty-six minutes north latitude. Its tributaries in the latter States are the Pecos, from the north; the Conchos, Salado, Alamo, and San Juan, from the south. The whole course of the river, in a straight line, would be near 1,200 miles; but by the meandering of its lower half, it runs at least about 2,000 miles, from the region of eternal snow to the almost tropical climate of the gulf. The elevation of the river above the sea near Albuquerque, in New Mexico, is about 4,800 feet; in El Paso del Norte about 3,800; and at Reynosa, between three and four hundred miles from its mouth, about 170 feet. The fall of its water appeared to be, between Albuquerque and El Paso, from two to three feet in a mile, and below Reynosa one foot in two miles. The fall of the river is seldom used as a motive power, except for some flour mills, which are oftener worked by mules than by water. The principal advantage which is at present derived from the river is for agriculture, by their well managed system of irrigation. As to its navigation in New Mexico, I doubt very much if even canoes could be used, except perhaps during May or June, when the river is in its highest state, from the melting of the snow in the mountains. The river is entirely too shallow, and interrupted by too many sand bars, to promise any thing for navigation. On the southern portion of the river the recent exploration by Captain Sterling, of the United States steamer Major Brown, has proved that steamboats may ascend from the gulf as far as Laredo, a distance of 700 miles. Although said steamboat did not draw over two feet of water, yet the explorers of that region express their opinion, that 'by spending some $100,000 in a proper improvement of the river above Mier, boats drawing four feet could readily ply between the mouth of the Rio Grande and Laredo.' Whenever a closer connexion between this head point of navigation and New Mexico shall be considered, nothing would answer but a rail road, crossing from the valley of the Rio Grande to the high table land in the State of Chihuahua.

"The *soil* in the valley of the Rio del Norte, in New Mexico, is generally sandy and looks poor, but by irrigation it produces abundant crops. Though agriculture is carried on in a very primitive way, with the hoe alone, or with a rough plough, made often entirely of wood, without any particle of iron, they raise large quantities of Indian corn and wheat, beans, onions, red peppers, and some fruits. The most fertile part of the valley begins below Santa Fe, along the river, and is called "rio abajo," or (the country) down the river. It is not uncommon there to raise two crops within one year. The general dryness of the climate, and the aridity of the soil in New Mexico, will always confine agriculture to the valleys of the water courses, which are as rare as over all Mexico—such, at least, as contain running water throughout the year. But this important defect may be remedied by Artesian wells. On several occasions I remarked on the high table-land from Santa Fe south, that in a certain depth layers of clay are found, that may form reservoirs of the sunken water-courses from the eastern and western mountain chain, which, by the improved method of boring, or Arte-

sian wells, might easily be made to yield their water to the surface. If experiments to that effect should prove successful, the progress of agriculture in New Mexico would be more rapid, and even many dreaded "Jornadas" might be changed from waterless deserts into cultivated plains. But at present, irrigation from a water course is the only available means of carrying on agriculture. The irrigation is effected by damming the streams and throwing the water into larger and smaller ditches (*acequias*) surrounding and intersecting the whole cultivated land. The inhabitants of towns and villages, therefore, locate their lands together, and allot to each one a part of the water at certain periods. These common fields are generally without fences, which are less needed, as the grazing stock is guarded by herdsmen. The finest fields are generally seen on the *haciendas*, or large estates, belonging to the rich property holders in New Mexico. These haciendas are apparently a remnant of the old feudal system, where large tracts of land, with the appurtenances of Indian inhabitants as serfs, were granted by the Spanish crown to their vassals. The great number of human beings attached to these haciendas are, in fact, nothing more than serfs; they receive from their masters only food, lodging, and clothing, or perhaps a mere nominal pay, and are therefore kept in constant debt and dependence to their landlords; so that if old custom and natural indolence did not prevail upon them to stay with their hereditary masters, the enforcement of the Mexican laws against debtors would be sufficient to continue their servitude from generation to generation. This actual slavery exists throughout Mexico, in spite of its iberal constitution; and as long as this contradiction is not abolished, the declamations of the Mexican press against the slavery in the United States must appear as hypocritical cant.

"Besides agriculture, the inhabitants of New Mexico pay a great deal of attention to the raising of stock, as horses, mules, cattle, sheep, and goats. Their stock is all rather of a small size, because they care very little for the improvement of the breed; but it increases very fast, and as no feeding in stables is needed in the winter, it gives them very little trouble. There are large tracts of land in New Mexico, too distant from water to be cultivated, or in too mountainous parts, which afford, nevertheless, excellent pasturage for millions of stock during the whole year; but unfortunately here, as well as in the State of Chihuahua, the raising of stock has been crippled by the invasions of the hostile Indians, who considered themselves secret partners in the business, and annually take their share away.

"A third much neglected branch of industry in New Mexico are the *mines*. Great many now deserted mining places in New Mexico prove that mining was pursued with greater zeal in the old Spanish times than at present, which may be accounted for in various ways, as the present want of capital, want of knowledge in mining, but especially the unsettled state of the country and the avarice of its arbitrary rulers. The mountainous parts of New Mexico are very rich in gold, copper, iron, and some silver. Gold seems to be found to a large extent in

all the mountains near Santa Fe, south of it in a distance of about 100 miles, as far as Gran Quivira, and north for about 120 miles up to the river Sangre de Cristo. Throughout this whole region gold dust has been abundantly found by the poorer classes of Mexicans, who occupy themselves with the washing of this metal out of the mountain streams. At present the old and the new *Placer*, near Santa Fe, have attracted most attention, and not only gold washes, but some gold mines too, are worked there. They are, so far as my knowledge extends, the only gold mines worked now in New Mexico. But as I have made from Santa Fe an excursion there for the special purpose of examining those mines, I must refer the reader, in relation to them, to that chapter of my narrative. As to the annual amount of gold produced in New Mexico, I am unable to give even an estimate. But as nearly all the gold of New Mexico is bought up by the traders, and smuggled out of the country to the United States, I believe that a closer calculation of the gold produced in New Mexico could be made in the different mints of the United States than in Mexico itself.* Several rich silver mines were, in Spanish times, worked at Avo, at Cerrillos, and in the Nambe mountains, but none at present. Copper is found in abundance throughout the country, but principally at las Tijeras, Jemas, Abiquiu, Guadelupita de Mora, etc. I heard of but one copper mine worked at present south of the Placers. Iron, though also abundantly found, is entirely overlooked. Coal has been discovered in different localities, as in the Raton mountains, near the village of Jemez, southwest of Santa Fe, in a place south of the Placers, etc. Gypsum, common and selenite, are found in large quantities in Mexico; most extensive layers of it, I understood, exist in the mountains near Algodones, on the Rio del Norte, and in the neighborhood of the celebrated "Salinas." It is used as common lime for white washing, and the crystalline or selenite instead of window glass. About four days traveling, (probably one hundred miles,) south-southeast of Santa Fe, on the high table land between the Rio del Norte and Pecos, are some extensive *salt lakes*, or '*salinas*,' from which all the salt, (muriate of soda,) used in New Mexico is procured. Large caravans go there every year from Santa Fe in the dry season and return with as much as they can transport. They exchange, generally, one bushel of salt for one of Indian corn, or sell it for one, and even two dollars a bushel.

"Not far from these salinas the ruins of an old city are found, of the fabulous '*la Gran Quivira*.' The common report in relation to this place is, that a very large and wealthy city was once here situated, with very rich mines, the produce of which was once or twice a year sent to Spain. At one season, when they were making extraordinary preparations for transporting the precious metals, the Indians attacked them; whereupon the miners buried their treasures, worth fifty

* At pages 32–3 the author says: "The annual production of gold in the two *Placers* seems to vary considerable. In some years it was estimated from $30,000 to $40,000 per annum; in others, from $60,000 to $80,000, and in latter years even as high as $250,000 per annum."

millions, and left the city together; but they were all killed except two, who went to Mexico, giving the particulars of the affair, and soliciting aid to return. But the distance being so great and the Indians so numerous, nobody would advance, and the thing was dropped. One of the two went to New Orleans, then under the dominion of Spain, raised five hundred men and started by way of the Sabine, but was never heard of afterwards. So far the report. Within the last few years several Americans and Frenchmen have visited the place; and, although they have not found the treasure, they certify at least to the existence of an acqueduct, about ten miles in length, to the still standing walls of several churches, the sculptures of the Spanish coat of arms, and to many spacious pits, supposed to be silver mines. It was no doubt a Spanish mining town, and it is not unlikely that it was destroyed in 1680, in the general, successful insurrection of the Indians in New Mexico against the Spaniards. *Dr. Samuel G. Morton*, in a late pamphlet, suggests the probability that it was originally an old Indian city, into which the Spaniards, as in several other instances, had intruded themselves, and subsequently abandoned it. Further investigation, it is to be hoped, will clear up this point.

"The *climate* of New Mexico is, of course, very different in the higher, mountainous parts, from the lower valley of the Rio del Norte; but generally taken, it is temperate, constant, and healthy. The summer heat in the valley of the river will sometimes rise to nearly 100° Fahrenheit, but the nights are always cool and pleasant. The winters are much longer and more severe than in Chihuahua, the higher mountains are always covered with snow, and ice and snow are common in Santa Fe; but the Rio del Norte is never frozen with ice thick enough to admit the passage of horses and carriages, as was formerly believed. The sky is generally clear, and the atmosphere dry. Between July and October, rains fall; but the rainy seasons are here not so constant and regular as in the southern States. Disease seems to be very little known, except some inflammations and typhoidal fevers in the winter season."

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"The whole *population* of New Mexico was, in 1793, according to a census, 30,953; in 1833 it was calculated to amount to 52,360, and that number to consist of 1.20 Gapuchines, (native Spaniards,) 4.20 Creoles, 5.20 Mestizes of all grades, and 10.20 of pueblo Indians. In 1842, the population was estimated at 57,026, and at present at about 70,000 souls."

* * * * * * * *

"The *rulers of New Mexico*, under the Mexican government, used to be a governor and a legislative power, (junta departmental,) but as the latter was more a nominal than a real power, the governor was generally unrestrained, and subject only to the law of revolution, which the New Mexicans used to administer very freely, by upsetting the gubernatorial chair as often as the whole Republic did that of the President. Governor Armijo, the last ruler of New Mexico, before

it was invaded by the Americans, has already received his full share of comment from the public press. He is one of those smart, self-confident men, who, like their prototype Santa Anna, are aware that the wheel of fortune is always turning, and that the Mexicans are a most credulous and easily deceived people; and though at present he is a fugitive from his country, and subdued, I have no doubt he will, before long, appear once more on the stage, and by some means come into power again. The judiciary power in New Mexico has always been as dependent as the governor was independent. Besides that, the clergy, as well as the military class, had their own courts of justice. In relation to the general government of Mexico, New Mexico has always maintained greater independence than most of the other States—partly from its distance from Mexico, and partly from the spirit of opposition in the inhabitants, who derived very little benefit from their connexion with the Republic, and would, therefore, not be taxed without an equivalent. Several times the general government tried to introduce in New Mexico the so called estanquillas, or the sale of tobacco in all its forms, as a monopoly of the general government; but it never succeeded. In the same way the introduction of copper coin was resisted. This loose connexion with the mother country will aid a great deal its annexation to the United States, provided, that the latter will bestow upon it what the Mexican government never could—stability of government, safety of property and personal rights, and especially protection from the hostile Indians.

"*Santa Fe* is one of the oldest Spanish settlements in New Mexico; its origin dates, probably, as far back as the end of the sixteenth century. It lies in 35 deg., 41 min., 6 sec., north latitude, and 106 deg., 2 min., 30 sec., longitude west of Greenwich.* Its elevation above the the sea, according to my own observations, is 7,047 feet.

"Santa Fe lies in a direct line about twenty miles east of the Rio del Norte, in a wide plain, surrounded on all sides by mountains. The eastern mountains are the nearest; those towards the northeast, the Taos mountains, the highest; some of their snow-capped peaks are supposed to be from four to five thousand feet higher than Santa Fe. A small creek, that comes from the eastern mountains, provides the town with water, and runs about twenty-five miles south-west from it into the Rio del Norte. There is no timber on the plains, but the mountains are covered with pine and cedar. The soil around Santa Fe is poor and sandy; without irrigation, scarcely anything can be raised. There is no good pasturage

* This is the result of the most numerous astronomical observations made by Lt. Emory, of the engineer corps, during his stay in Santa Fe, and which he has kindly allowed me to refer to. The result of my own observations for latitude, made during my short sojourn in Santa Fe, differs from his but in seconds. Dr. J. Gregg had already determined it as in 35 deg., 41 min. There can, therefore, be no doubt as to the real latitude of Santa Fe. Nevertheless, all the Mexican maps have generally laid it nearly one degree further north. This northern tendency of Mexican maps I observed on many other points where I made observations for latitude.

on the plains; stock is generally sent to the mountains, and only asses, mules, and goats—the stock of the poorer classes—are kept near the settlements.

"The climate of Santa Fe is rather pleasant; not excessively warm in the summer, and moderately cold in the winter, though snow is a common occurrence. Nearly all the year the sky is clear, and the atmosphere dry. All the houses in Santa Fe are built of adobes, but one story high, with flat roofs; each house in a square form, with a court or open area in the centre. The streets are irregular, narrow, and dusty. The best looking place is the 'plaza,' a spacious square, one side of which the so called palacio, the residence of the Governor, occupies. The palace is a better building than the rest; it has a sort of portico, and exhibits two great curiosities, to-wit: windows of glass, and festoons of Indian ears. Glass is a great luxury in Santa Fe; common houses have shutters instead of windows, or quite small windows of selenite, (crystalized gypsum.) The festoons of Indian ears were made up of several strings of dried ears of Indians, killed by the hired parties that are occasionally sent out against hostile Indians, and who are paid a certain sum for each head. In Chihuahua, they make a great exhibition with the whole scalps of Indians which they happen to kill by proxy; the refined New Mexicans show but the ears. Among the distinguished buildings in Santa Fe, I have to mention yet two churches with steeples, but of very common construction.

"The inhabitants of Santa Fe are a mixed race of Spanish and Indian blood, though the latter prevails. The number of inhabitants was, in former times, reported as high as 4,000; at present it contains at most 3,000; and with the surrounding settlements belonging to the jurisdiction of Santa Fe, about 6,000. The manners and customs of the inhabitants of Santa Fe are those of whole Northern Mexico; they are indolent, frugal, sociable, very fond of gambling and fandangos, and the lower classes, at least, exceedingly filthy. As in most Mexican towns, I was at a loss to find out by what branch of industry the mass of the people support themselves; and I came at last to the conclusion, that if from natural indolence they work as little as possible, their extreme frugality, too, enables them to subsist upon almost nothing."

Although we have already drawn very largely from the author, we should not do justice to his labors without publishing his summary of the various geological observations, spread over the whole extent of the journal. At page 135 he says:

"Independence, near the western frontier of the State of Missouri, is situated in the great Missouri coal basin, which occupies more than one-third of that State.

"The first rock in situ which I saw in the prairie, after leaving Independence, was on Rock Creek, about seventy-nine miles from Independence. It was a yellow-brownish compact limestone, with encrinites, and similar fossils of the carboniferous limestone, as found in Missouri.

"On Pleasant Valley creek, (125 miles,) the bluffs are formed by two different

limestones: the one is white and compact—the other grayish, soft, and argillaceous. The first contained some indistinct fossils, but in too imperfect a state to determine what formation they indicate.

"In Council Grove, (143 miles,) a horizontal, grayish, argillaceous limestone prevails, without fossils.

"Leaving Cotton-wood creek, (185 miles,) irregular heaps of bog-ore are seen in the prairie, and a ferruginous sandstone of yellow, brown and blue color, extends from here to Pawnee Fork, a distance of about one hundred miles.

"The bluffs of the Little Arkansas consisted of a spotted, yellow, calcareous sandstone, and isolated pieces of ferruginous sandstone.

"Between Camp Osage, (the first camp near the Arkansas river,) and Walnut Creek, (263 miles,) I met with a very porous and scoriaceous rock in situ, apparently the product of action of subterranean fires upon the ferruginous sandstone. Most likely a large coal-field lying beneath here has become ignited, and produced this change of the rock. The so called Pawnee Rock, (between Walnut creek and Ash Creek,) consists of the same ferruginous sandstone, changed by fire. On Pawnee Fork, (292 miles,) I saw the last of it; the ferruginous sandstone there was more compact, and deep red.

"On a branch of Big Coon creek, (332 miles,) I found the bluffs to consist of common sandstone below, and a white, fine grained-marl above it. This marl resembles very much some of the cretaceous formation of the Upper Missouri; but finding no fossils, I could not ascertain it.

"Two miles beyond that place (341 from Independence,) I had the first chance to examine the bluffs on the Arkansas; it was a grayish, conglomerated limestone, with a few small fossils, that were rather imperfect, but seemed to belong to the cretaceous formation. The neighborhood of the above mentioned marl raises this presumption nearly to certainty. I have, therefore, not hesitated to lay it down as cretaceous formation. About 20 miles higher up on the Arkansas, I saw, upon a second examination, but a coarse conglomerate of sand and limestone. At the usual fording place (373 miles,) where I left the Arkansas for the Cimarron, no rocks were in situ.

"Having crossed the Arkansas, I met with the first rocks again, on the 'middle springs of Cimarron,' (468 miles;) it was a sandy limestone above common sandstone.

"Six miles west of the Crossing of Cimarron (500 miles from Independence,) light bluffs rise in the prairie of a yellow, reddish, and spotted sandstone, combined with lime and argile.

"A few miles beyond them a large, isolated mountain of boulders stands in the plains, composed of heavy blocks of quartz and quartzose sandstone, and many erratic rocks were afterwards found on our road.

"On Cedar creek, McNees' creek, and Cotton-wood branch, a yellow sandstone prevailed.

"On Rabbit-ear creek I met for the first time with amygdaloidal basalt, a black, heavy, basaltic rock, with a great many irregular, vesicular cavities, that are generally hollow—sometimes, too, filled with lime; in rare instances, with olivin. This rock is most common throughout the high mountains of Mexico. It occurs in most irregular masses, in whole mountains, as well as in millions of pieces strewn over the surface of the country. Here it rose in high perpendicular walls, as bluffs of the creek, and a very compact quartzose sandstone was below in horizontal layer.

"The Round Mound, a mountain in the prairie, about three miles further west, which I ascended, is formed of a brown, decomposed basaltic rock.

"On Rock creek, and Whetstone creek, the amygdaloidal basalt with underlying sandstone was found.

"In going from there to 'Point of Rocks,' (600 miles,) extensive strata of a yellow, compact quartzose sandstone are passed, dipping gently towards the east. Point of Rocks itself, a spur of the western mountains, is a mass of sienite.

"Some twelve miles beyond it, rises a hill in the plains, composed of very compact, black basalt, with underlaying white sandstone.

"The bed and bluffs of the Rio Colorado and Ocate creek (627 miles,) are formed by quartzose sandstone.

"The Wagon mound, an isolated mountain in the high plain, consists of a compact, black, and spotted basalt, rising in columnar shape.

"On Wolf creek (664 miles) the amygdaloidal basalt and quartzose sandstone reappeared, both in horizontal layers.

"Reaching the Galinas creek, near las Vegas, (690 miles,) I met, after a long interval, with limestone again. It was a dark blue, with casts of Inoceramus of the cretaceous series.

"From here we penetrated into the very heart of the mountains. At first we met but with standstone, common and quartzose, and of most different colors.

"Near San Miguel (707 miles,) a coarse conglomerate was found of decomposed granite, sandstone, and lime, and large blocks of decomposed granite lined the Pecos river, opposite the old Pecos village, (737 miles.)

In the canon leading from here to Santa Fe, at first sandstone is found, common, quartzose, and calcareous, of various colors and granulations, till about 15 miles from Santa Fe, granite in situ appears, and continues all the way to Santa Fe. Near where I met for the first time with granite in situ, the sandstone, if I may judge from a very limited examination, was suddenly uplifted and thrown back in an angle of nearly 100 degrees.

"West of Santa Fe, granite seems also to prevail. In my excursion to the Placers, southwest of Santa Fe, I found sandstone below, and on the height of the mountains granite and trap rocks.

"In the mountains of that neighborhood, common limestone and sulphate of lime are said to exist; but on the road over which I traveled I had no chance to see any:

"Granitic and trap formations seem to predominate, too, in the valley of the Rio del Norte below Santa Fe; but as the road leads always along the river, and as the mountains on either side are generally about ten miles distant, I could not examine them as I wished to do, and had often to depend alone upon the external form of the mountain chain, apparently indicating unstratified and igneous rocks. Whenever the mountains approached the river, I gained more information. So, for instance, I found between Joyita and Joya, (about 115 miles from Santa Fe,) quartzose sandstone and quartz in a spur of the eastern mountain chain; and in Joyita itself, bluffs near the river of amygdaloidal basalt.

"Some miles west of Socorro, (140 miles,) on the right bank of the river, I examined the western mountains, and found porphyritic and trachitic rocks.

"Near the ruins of Valverde, (165 miles,) I met with bluffs of a dark brown, nodular sandstone; and about eight miles beyond, with amygdaloidal basalt again.

"In the Jornada del Muerto granitic and basaltic formation, to judge from their shape, exists in the distant mountain chains; part of them in the eastern chains is called, for their basaltic appearance, Organ mountains.

"Below Donana I perceived some primitive rocks again, near the river, resembling a decomposed porphyry.

"The mountains above El Paso belong mainly to the trap formation.

"During my short stay in El Paso I made an excursion to the south-western mountains of the valley, and was rather astonished to find mountains of limestone. The foot of the mountains was formed by a horizontal quartzose sandstone, similar to that underlayin g the amygdaloidal basalt. The very compact and gray limestone, intersected with many white veins of calcspar, rose upon it to the crest of the mountains; but on several places, granite and greenstone seemed to have burst through it and formed partial eruptions. After a long search I discovered some fossils, and though much injured and imperfect, they are, nevertheless, sufficient to determine the age of this formation. The fossils are a coral: *Calamopora*, and a bivalve shell of the genus *Pterinea*. This limestone is, therefore, a Silurian rock. Several mines have formerly been worked in it.

"On the road from El Paso to Chihuahua, I met in the first day or two with the same limestone. The pieces lying on the road were generally surrounded with a white crust of carbonate of lime; pieces, too, of what appeared to be fresh-water limestone, occurred. It is rather probable that this is the same material as the white crust of the blue limestone, and that both are the result of calcareous springs.

"About fifty miles south of El Paso, the limestone seems to cease, and porphyritic rocks, of the most varied colors and combinations, continued from here as far as Chihuahua, interrupted sometimes only by granitic rocks. The base of the porphyry is generally felspar.

"Around Chihuahua and some distance to the south and west of it, in the

Sierra Madre, porphyritic rocks predominate, and valuable mines are found in them.

"Near Chihuahua, I understood, about twelve miles northeast of it, mountains of limestone appear; and through the favor of Mr. Potts, in Chihuahua, I received a piece of limestone from there, containing some casts of the chambers of an Orthoceras, proving that this limestone belongs also to the Silurian system. Mines are also found in it.

"Another fossil I received in Chihuahua, said to come from limestone near Corralitas, a mining place about 250 miles northwest of Chihuahua. It is a Pecten quinquecostatus, (Sowerby,) of the cretaceous series; but not having traveled through that part of the State, I am not able to give any comment upon it.

"From Chihuahua to Matamoros, traveling with the army as a surgeon, my time was so occupied that I could not make any distant excursions from the road; but generally, too, the geology of the country seemed to be very uniform and uninteresting.

"From Chihuahua some distance south, the porphyritic rocks continued. In Saucillo, (70 miles from Chihuahua,) I perceived the first limestone again. From there to Santa Rosalia I passed some hills of amygdaloidal basalt, but the main chain of the mountains was all limestone, and continued to be so throughout the whole eastern ramification of the Sierra Madre, over which we traveled from here down to Saltillo and Monterey, where the low country begins. This limestone forms steep, often rugged mountains, rising on an average 2,000 feet above the plain; it is metaliferous, and has all the appearance of the Silurian limestone found at El Paso and Chihuahua, but I was never able to discover any fossils on this route. Silver and lead mines are of various occurrence in it; in the limestone surrounding Cadena, coal has been found, I was informed, but I had no time to verify it.

"From Monterey to the sea shore I made but one interesting discovery—near Mier. On the bank of the Alamo river, about four miles above its mouth into the Rio Grande, I found an extensive bed of large fossil shells of Ostrea, belonging to the cretaceous formation. As the same formation has lately been discovered by Dr. Rœhmer, of Berlin, as extending in Texas from San Antonio to the Brazos, this cretaceous bed near Mier is, in all probability, a continuation of it. In looking over the recent publication of 'Notes of the upper Rio Grande, by Bryan Tilden,' I found, in a description of the river bank of the Rio Grande below Laredo, that 'entire hills are to be seen, composed almost wholly of what appears to be a collection of large sea oyster-shells.' I presume, therefore, that the same cretaceous formation extends in this direction higher up on the Rio Grande."

The Geology, the Flora, and Meteorology of a given region must all be known before we can form a correct estimate of its value, and capacity of supporting man in a state of civilization. To each of these subjects the author industriously

devoted his attention. His botanical collections are very extensive. After his return they were submitted to Dr. G. Engleman, an accomplished botanist of this city, who has described a number of new varieties that will be found interesting to those who delight in the beauties of nature.

The meteorological table is very complete, and constitutes an important and interesting portion of the work, as well to the agriculturist as to such as may desire to visit that region in search of health, but its great length prevents us from publishing it at present. In examining the table which embraces the time that the author was in the valley of the Rio del Norte above El Paso, we have found the temperature much higher than we had supposed it to be in that region. He reached Santa Fe on the 30th of June, and from that date to the 8th of August, the time of his arrival at El Paso, say thirty-nine days, we find twenty-seven days on which the thermometer reached 80 degrees Fahrenheit. One day it stood at 90 degrees and ten days above, and twice it reached 96.5 degrees. The lowest point noted during this period of thirty-nine days, is 60 degrees, which is reported at sunrise on the 19th of July. The mean temperature is not calculated, but we imagine that it will be found equal to that of the southern States during the same period.

Besides a map of the country and a geological sketch, the book contains a profile of elevations above the level of the sea, including the entire route from Independence to Reynosa.

This, in a national point of view is, perhaps, the most useful branch of the author's labors, and was of itself of sufficient importance to have authorized the government to send out a party to perform the work. The observations were taken at about one hundred and sixty-six points.

We can only notice a few of the principal places: St. Louis is 420 feet above the level of the ocean; Independence 1,040; Council Grove 1,190; Crossing of the Arkansas 2,703; Crossing of Cimarron 3,830; Rio Colorado 5,642; Santa Fe 7,047; Rio del Norte, three miles north of Albuquerque, 4,813; El Paso 3,814; Chihuahua 4,640; Cotton-wood branch camp, about twenty miles this side of Santa Fe, 7,250 feet. This is the highest point on the route.

The author was disappointed in his original design of visiting Upper California, by the war—which broke out after his departure on his tour—and being detained six months, as he says, in a very passive situation by the arbitrary government of Chihuahua—after the taking possession of that State by our troops he accepted a situation in the medical department of the army, under the command of Colonel Doniphan, and returned by the way of Monterey to the States. Although diverted from his route, yet he was true to the cause of science, and while performing other duties, and controlled by the movements of one of the most extraordinary campaigns, in some respects, upon record, he still continued his scientific observations. We sincerely trust that so much zeal for the cause of

science, and so much labor performed by a private individual for the public benefi will meet with a just reward.

In concluding this hasty and imperfect notice of the labors of the author, thet inquiry naturally arises, what benefit will the country derive from the acquisition of New Mexico, and what effect is likely to be produced upon the economy of the older States by our possessions in that remote and isolated region? While we feel incompetent to give a satisfactory answer to this inquiry, we will, nevertheless, take a cursory view of the resources of that country, and of the probable influence which its new relations to this, will exert upon both.

The physical character of New Mexico plainly indicates the division of labor there into three departments, viz: Agriculture, grazing and mining. Owing to the limited quantity of fertile soil, and the necessity of irrigation, although agriculture may be profitable, it can never become very extensive; and even if the country was more favorable for this branch of industry, yet, owing to its location, the raw material could not find a market abroad, at prices which would authorize its transportation. The extensive regions abounding in natural pasturage, affords a vast field of employment; and if a fair market can be obtained for stock, this will, in time, become an extensive source of wealth. But the prosperity of both these branches of industry, depends upon the mines. Without this resource the commerce of New Mexico with other States, must remain very limited, and lacking that stimulus to industry which arises from remunerating prices, the progress of civilization will be slower there than perhaps in any other portion of the United States. But should mining prove successful, as we have reason to suppose it will, the valley of the Rio del Norte is destined to be one among the most wealthy, and in many respects, the most interesting portions of the Union. Completely protected against foreign competition, by its isolated location, the farmers would obtain prices for their products that would encourage the improvement of every acre of land that could be irrigated, until it would become as a cultivated garden in the bosom of the mountain, surrounded by scenery unsurpassed, perhaps, by any on the globe, and blessed with a climate at once delightful and salubrious. Possessing such attractions, it could not fail to draw wealth and all the refinements of a high state of civilization, from other parts of the country.

The production of the precious metals, to a considerable extent, in New Mexico, would be highly beneficial to the other States, especially so long as our foreign commerce continues so large as at present. A regular supply of five to ten million dollars from the mines would go far to protect the country against revulsions growing out of foreign trade; and as a considerable portion of this money would doubtless enter into the circulation of the Western States, it would give impulse to the development of their resources and strengthen them against the money power of the east.

Believing as we do, that the value of New Mexico to the other States will de-

pend mainly upon the productiveness of its mines, we trust that our government will, without delay, adopt proper measures for a thorough geological survey of the country, and also establish some mode of disposing of the lands that will offer encouragement to both capital and enterprize.

ART. IV—PLANK ROADS.

We are indebted to Philo White, Esq., for a copy of a Report on Plank Roads, submitted by him to the Legislature of Wisconsin. This document furnishes a more full and complete exposition of the advantages of this description of roads, than we have before met with. The first question considered is, what kind of roads are best adapted to the present wants of the community? And though rail roads are admitted to afford the greatest facilities under particular circumstances, yet it is concluded that there are many situations where a class of thoroughfares less costly, "and more practical *for every day use*," are called for.

The advantages of plank roads, over McAdam or stone roads, are, that the former can be made in all situations, without regard to the character of the soil; that they are less liable to be affected by frost, (which is sometimes very injurious to M'Adam roads;) and that they can be built and maintained at much less cost. It is calculated that horses will travel with wheel vehicles, one-fifth faster, and draw one-fifth more weight on a plank than on a stone road. "In fine," (says the report,) "plank roads are preferable to those of McAdamized stone in cheapness, in case of draught and in comfort to passengers; greater speed being attainable on them with less assistance to draught; and stage owners say that they are less fatiguing to horses than stone roads, at the same rate of speed."

Plank roads, it is said, were first made in Russia; and their first trial in America was in Canada, where they were made by Lord Sydenham, who from a long residence in Russia, had become well acquainted with them, and was thoroughly convinced of their utility. We are informed that the Canadians are now so well satisfied of the great advantage of these roads, "that they have gone more extensively into the use of them than any kingdom or republic on the globe." These roads are chiefly in Canada West—the aggregate length of the different lines already constructed, being between 400 and 500 miles. We are not aware of the entire number of miles of plank road actually finished in the State of New York, but this report informs us that the various lines for the construction of which companies have been organized in this State, amount in the whole to a distance of 500 miles.

As to the *width of the track*, or the length of the plank used, the report states that it has been shown "most conclusively, that for a single track, eight feet is preferable to a greater width," and that where a double track is wanted, it is best to make them separately of that width. The planks are laid across the bed at

right angles. In regard to the necessity of more than one track, the report quotes the remarks of Mr. Geddes, in relation to the Salina road. Mr. G. observes "great speculative objection was made in the start to but one track; but we have now the entire community with us in deciding that, on all ordinary roads, one track is fully sufficient. The reason is this: the travel in wet weather is entirely on the plank, except the turning out of the light teams; but they seek the plank again as soon as they can get around the team met or overtaken, so that the turn-out track is not cut with any continuous lengthwise ruts, and perhaps the wheels of not one team in a hundred turn-outs will strike the exact curve of another; consequently, in our experience, our turn-out track being well graded, passing the water easily and rapidly from its surface, remains perfectly hard and smooth."

Sleepers or Stringers.—In one or two instances, roads have been made without sleepers—the plank being laid immediately on the graded earth. The planks have kept their places quite well; but it appears to be the conclusion that it is best to use sleepers or sills.

"The sills," (says the report) "should be well bedded in the earth, their top surface barely in sight, and the earth in which they are embedded should be broken and pulverized, so as to leave no stones or other hard substances to obstruct their settling evenly, and thus permitting the earth to sink down firmly on the earth as its main support. Two stringers only are used on the Salina road, 4 by 4 inches in size and none less than 13 feet in length; they should be so laid as to break joints, as in laying brick, or putting on siding, that is, the ends of the stringers on one side should not be laid opposite the ends of those on the other side. About 6 feet 8 inches is the proper width between the two lines of stringers, for an 8 feet single track road, which will bring them under the wheels of most road vehicles, and thus give a continuous bearing on them. One set of sleepers of good timber and well bedded, will last as long as two or three plankings."

Grading.—It is directed that the road should be graded twenty-one feet wide, "measuring from the inside top-lines of the ditches on each side." Great care should be used that the road be kept dry by means of side ditches and cross culverts. They should be made fine, firm and smooth.

In regard to lengthwise grading, it is observed that short rises are sometimes made of one foot in ten, though they are generally from one foot in twenty to one foot in thirty. Mr. Alvord's remarks on this subject are quoted. "It is easier to go over the same elevation on a plank road than on a common dirt one; for on plank there is no cutting into the substance passed over, nor encountering of stones by the wheels; and if, as it ought to be, the plank way is covered with a slight coating of earth, the only danger suggested, the slipping of the animal, is avoided. It would be a prettier sight for the eye, were we to grade our plank roads more level; but while their practical utility is not lessened in any perceptible degree by their unevenness, economy forbids the expense of *leveling* them for *ornament*."

The *kind of timber* used for planks is oak, hemlock, or pine. Oak lasts as well as any wood, but is *slippery* in wet weather. The wear by abrasion is calculated at one-fourth of an inch in two years; "and as planking will not break through till one and a half or two inches of the surface is worn away, it follows that the duration of the plank, (if of pine or other soft timber,) would be eight years." Oak would generally last, it is thought, fifty per cent. longer.

The cost of plank roads is estimated at from $1,500 to $2,000 per mile.

Plank Roads preferred by Farmers.—The opinion is advanced in the report that "railroads can never be made to take the place of teams for the transportation of grain, &c., within one day's drive of a market, because the farmer can carry the cheapest for that distance."

"There are seasons when work is slack with almost every farmer; yet his teams are daily consuming as much food at such time as when fully employed. Availing himself of these seasons, he can haul his produce to market with a very few shillings' expense, in addition to what would have been incurred had his team remained idle in their stalls."

The inducements for farmers to take stock in plank roads, are summed up as follows:

"Now, in view of these facts and suggestions, it must readily occur to every farmer, within a reasonable distance of the line of a plank road, that he can better afford to take stock in such a company than any other of our industrial classes, because he can more cheaply pay for his shares—by *working them out* on the road. Every head of a family, with his teams, scrapers, shovels, and other implements which are always at hand in the cultivation, &c. of his farm, could, during those leisure times which every one occasionally enjoys, work out from one to a dozen shares, according to his force and proximity to the road, without any serious diversion of his attention from his regular vocation, or perceptive detriment to his crops. In fine, to all classes of farmers, no scheme was ever devised that afforded so rich an assurance of immediate and positive benefits to *them*, as the construction of plank roads in the neighborhood of their farms." [*Cultivator.*

ART. V.—THE RISE, PROGRESS AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

Messrs. Editors:—I pray you, my dear sirs, to excuse me for the shortness of this article. I will make amends in my next. A. S. W.

ARCHITECTURE.

As it is no stretch of the imagination to suppose that man, after his expulsion from the Garden of Eden, first exercised his inventive powers in the construction

of a simple domicil, we will give precedence to architecture in these papers, for she claims priority of all the arts, and shall accordingly receive our first respectful attentions.

At present, she takes the third rank among those arts denominated Fine, and is one of that ennobling sisterhood which demands of its votaries, a refined taste, profound judgment, and a high degree of mental culture in order to accomplish its designs. It ministers to the comforts and intellectual gratification of man in the highest state of civilization, raises a shield of defence in time of war, and throws around the devotee, when bowed before the altar of Omnipotence, a feeling of awe and reverence, commensurate with, and inseparable from, the sanctity of His pure and holy worship.

But, unlike either Painting or Sculpture, it is more tramelled with prescribed rules—the imagination has a lesser field wherein to exercise the fancy, and a line of demarcation has long since been drawn, beyond which it may not go. Like its nobler sisters, it ranks the nations where it is cultivated, high in the scale of civilization, and is a good criterion by which to judge of the refinement of a people.

It would afford to the contemplative enquirer, an ample and interesting occupation, were he to trace the gradual development, advance, and final excellence of this branch of art; and to this end, he could not do better than to direct his attention to it here in his own loved native land.

On this immense continent, he has only to cast his eye over the vast forests and prairies of our north-western territories, and to the populous cities of the east, and he will find every example, from the rude wigwam of the Aborigines, the log hut of the pioneer, the neat dwelling of the farmer, the substantial houses of the merchant and mechanic, and the marble palace of the *millionaire*, up to the grand and imposing structures of the States and General Government. In all these, he will see its rise, progress and influence on society at large.

The untamed denizen of the wilds, like the first children of the world, contents himself with a mere shelter, and relies upon the spontaneous productions of the earth, or the precarious fortunes of the chase, for a subsistence. The newly arrived settler, resembling man a little advanced from primitive simplicity, constructs his habitation of logs—at once a shelter, and refuge in danger—and cultivates his fields, that in due season he may reap the kindly fruits thereof. The merchant and mechanic, living in communities in a state of further advancement, and depending, not so much on manual as mental labor, raise for themselves substantial buildings, whilst the prosperous citizen erects a marble palace, glowing in all the symmetry of architectural splendor, and enriches its interior with the intellectual embellishments of Painting and Sculpture.

In each progressive stage of this art we see the march of mind; its advancement is the result of civilization, and its excellence the test of refinement. The observant traveler, as he passes over a country, can form a correct estimate of the

character of its inhabitants, by the prevailing style of the buildings—*private*, as well as *public*—for, the mind invariably communicates its tone to all works of art; and in exact proportion to its elevation or depression, will *they* rise or fall in the scale of greatness. And, for the love bestowed upon her by a nation, does architecture acknowledge her sense of gratitude, by bestowing upon the people at large, a calm, a happy influence—exalting the public taste, and engendering a love of country and self respect.

[TO BE CONTINUED.]

COMMERCIAL STATISTICS.

THE following extracts from the Merchants' Magazine were not observed until after we had sent to the press the article, in this number, on the "Artificial Agents of Exchange,"* and also, our remarks upon the effects that the production of a considerable quantity of the precious metals in New Mexico would be likely to produce upon the prosperity of the other States of the Union.† Had the facts contained in these extracts been before us at the time of writing those articles, we should have used them for the purpose of illustrating our arguments. We publish them at present, for the purpose of affording to the reader an opportunity of considering them in connection with those subjects:

MOVEMENT OF SPECIE, PORT OF NEW YORK, NOVEMBER 1ST TO MAY 17TH.

	Import.	*Export.*	*Nett Export.*	*Duties Paid.*	*Total Demand.*
November,	$58,915	$1,455,946	$1,397,031	$1,024,766	$2,421,797
December,	39,712	1,888,867	1,849,155	856,576	2,705,731
January,	48,030	1,183,517	1,135,485	2,305,017	3,440,502
February,	49,502	433,226	383,724	2,416,497	2,800,221
March,	22,781	452,507	429,726	1,553,003	1,982,729
April,	65,917	1,180,422	1,124,505	1,686,506	2,811,011
May,	18,280	1,600,000	1,681,720	554,875	2,236,595
Total,	$303,139	$8,194,485	$8,001,346	$10,397,244	$18,398,476

These give the figures as represented by the New York official returns. They do not, however, embrace either the amounts sent from New York to Boston for shipment, or those large sums received from abroad through emigrants, and not returned at the custom-house. These last are known to be considerable. In fact, the New York Banks, which held $9,000,000 November 1, had lost but $2,000,000 May 16. Very considerable sums had, however, been received from the country banks following the course of exchange, which is every where in favor of New York, arising from the considerable purchases of goods for the country. While

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produce sent down has sold in small quantities, and at very low rates, at the same time foreign bills have been scarcely available in New York; therefore, a very considerable resource has been cut off. This state of affairs gives rise to rumors injurious to the credit of many banks. The state of the exchanges depends, in an eminent degree, upon the course of events in Europe, particularly in France, where one of the chief features has been the continual encroachments made by the Provisional Government upon the rights of private property.

This is the simple and certain mode in which foreign revulsions affect this country. The drain commences in the eastern cities, but as soon as its approach is perceived or apprehended, they begin to draw the precious metals from the west; and thus, it is not until the latter is completely exhausted, that the former, in reality, begins to suffer. It is true that large amounts of specie may be shipped by every packet, but so long as the vacuum continues to be filled from the west, the amount in the east remains the same. But the west having been drained, and the channels of circulation once dried up, it possesses no resources in its rear from which it can be replenished, and must wait until the storm is past, and the tide again returns from the east.

The following statistics, with the remarks connected with them, are, among other things, calculated to show the important effects resulting from the increased production of the precious metals in Russia:

One of the most remarkable features of the last few years, has been the continued large amounts of specie that have reposed in the vaults of the banks of the leading cities of the commercial world. It would seem, so far from an increase of commercial transactions requiring an increase of coin, as those would teach who hold that there is not specie enough in the world to transact its business without the aid of bank paper, that actually the increase of business throws specie out of employment. As an indication of this process, we may take the official returns of the banks of four cities at the close of four years, reducing the sums to United States currency:

SPECIE IN BANKS OF FOUR CITIES.

	1842.	1844.	1846.	1847.
Bank of England,	53,015,000	74,715,735	72,802,530	75,180,227
" France,	36,984,677	45,955,653	14,912,965	23,220,647
Banks of N. York,	7,244,005	6,130,456	9,180,240	9,107,920
" N. Orleans,	4,58g,737	8,138,987	7,930,246	7,252,103
Total,	$101,830,419	134,940,831	104,825,981	114,760,897

From 1842 to 1844, the specie at these four points increased $33,000,000 coming out of the channels of circulation when business was active, commodities plenty, and their interchange, by means of individual notes and bills of exchange, unchecked by distrust. In 1846, the failure of harvests, by taking away one description of commodities, caused a demand for the precious metals for an extra-

ordinary purpose, and the Bank of France underwent a drain so severe as to compel it to borrow £4,000,000 specie of the Bank of England. The continuance of this drain, arising from the same causes, brought the Bank of England nearly to ruin in October last. The reason of this was not so much the want of specie for the purposes of trade, as because distrust had fallen upon individual bills, and every body, in all countries, wanted specie only. As the engagements outstanding were completed, and no new ones entered into, the demand for specie became less and less, and it continually returned to the bank, until the amount in hand is as large as at the moment of the greatest confidence. Thus a stagnation of business and a state of perfect confidence seems to produce the same results; namely, to dispense with coin. The precious metals, therefore, act only in a moment, as now, when nothing else will answer; and it is coming and going across the Atlantic at great expense, for no other reason than that other commodities are not available to discharge obligations, and promises cannot be trusted. It is to be remarked, that while the shortening of communications and the improvements in systems of trade are thus operating to lessen the importance of the precious metals, the supply of the latter is rapidly on the increase. The chief quarters whence they are derived now, are Russia and Mexico; the former for gold and the latter for silver. The mines of Russia have already become so prolific as to have produced an important influence upon the affairs of nations. The large supplies that came opportunely to the aid of the Banks of France and of England, at the moment of the crisis last fall, alone prevented that general explosion of credit, in a state of peace, that is now likely to grow out of a general war.

The mines of Russia are in Oural, discovered in ——, and in Siberia in 1829. The quantity produced down to the close of 1846, as expressed in the official journal of St. Petersburg, and reduced to pounds and dollars at the English mint price of gold, is as follows:

RUSSIAN GOLD PRODUCTION FROM 1819 TO 1847.

	Poods.
1819 to 1843 - - -	8,603
1843 - - - -	1,283
1844 - - - -	1,341
1845 - - - -	1,386
1846 - - - -	1,722
Total poods, - -	14,335
Total pounds, - -	516,060
Value, - - -	$158,946,480

The Russian pood is 36 pounds avoirdupois; and the English mint price for gold £3 17s. 6d is, at an exchange of $4 80, equal to $308 per lb., giving the enormous sum here designated. The production of 1846, exceeding all former years, is $19,093,536, equal to twelve and a half per cent. of the product since

1819. Since 1842, she has produced $64,000,000 of gold, and the Bank of England has $20,000,000 more in its vaults.

There has been recently published a parliamentary paper, dated December 3d, 1847, in which a return of these facts is made. The following appears, by the return of the British consuls, to be the quantity of gold produced in the empire of Russia in the ten years ending with 1846:

1837	£900,673	1841	£1,316,653	1844	£2,730,647
1838	1,004,120	1842	1,848,808	1845	2,792,156
1839	1,003,403	1843	2,635,386	1846	3,414,427
1840	1,115,037				

It is added, in this return, that "there is reason to believe that considerable quantities have not been declared." And, also, that new mines have been discovered in the Oural; while the fact that an imperial ukase has lately forbidden the sale of public estates in the region of the auriferous sands of Siberia, justifies the inference that the government has made successful surveys in that direction. In the ukase of March 31, 1847, which orders the investment of £4,600,000 in the English and French funds, the "bullion fund" existing in St. Petersburgh is stated to amount to 114,000,000 of rubles, or nearly £20,000,000 sterling. This vast increase of the gold products of Russia has been one result of the long peace, which has operated powerfully against the Russian staple exports, as hemp, iron, quills, duck, &c. The growth of hemp in other countries of Europe has competed seriously with that of Russia; the development of the iron trade of England has curtailed the demand for Russian; quills have been extensively supplanted by steel pens; and her exports of tallow have diminished under similar competition. All these causes have turned her industry within herself, and the increased application of serf-labor to the gold mines is producing the results indicated in the above table.

The mines of Mexico have continued to send forth some $12,000,000 of silver per annum, feeding the circulation of France, where that metal is the standard; while England has been more than supplied with gold from Russia. In November last, the arrival of £1,000,000 in gold from Russia was the first opportune supply that flowed into the vaults of the bank. The large and increasing supplies still held by Russia, and reported at more than £100,000,000, are a chief element in the strength which that power has acquired since the last war, and will be a powerful means of supporting her troops in Europe. In the last wars, she bought gold of the Messrs. Rothschild for the supply of her military chest; she now stands in the attitude of the source of supply for all countries and all powers. The continuance of peace would, in a very short time, have produced a very sensible depression in the value of the precious metals, by the double operation of there being less needed in commerce, and greater in supply.

IRON MANUFACTURE IN GREAT BRITAIN, AND QUANTITY IMPORTED INTO THE UNITED STATES.

The following facts, which we gather from a lecture on the history and practice of mining in the British isles, recently delivered in Manchester, England, and reported in the *Manchester Guardian*, will show the advance which has been made in the manufacture of iron in the United Kingdom within a hundred years:

TONS OF PIG IRON MANUFACTURED AT DIFFERENT PERIODS.

Years.	*Tons.*	*Years.*	*Tons.*
1740	17,350	1828	702,584
1788	65,800	1830	653,417
1796	204,059	1840	1,396,400
1823	442,066	1845	1,750,000
1825	581,367		

The last statement, in respect to 1845, is only an approximation, being an estimate of Mr. McCulloch. There has, since 1840, been no means of ascertaining the extent of the iron manufacture, through a feeling of jealousy on the part of manufacturers. It is estimated that it requires three and a half tons of coal to produce a ton of iron. Supposing the present manufacture not to exceed Mr. McCulloch's estimate for 1845, the consumption of coal would amount to 6,125,000 tons a year. Add to this 3,000,000 tons for the conversion of pig iron into bar iron, and it would follow that 9,125,000 tons of coal are annually consumed in this single department of British industry.

There is evidence that iron was worked extensively in Dean Forest, in England, as early as 1065. So greatly had these works extended at the commencement of the sixteenth century, that a law was passed to restrain them from spreading further, on the imaginary ground of a scarcity of fuel. Oliver Cromwell was an extensive iron master, having been a partner in a firm which had large works in Dean Forest.

The quantity of manufactured iron and steel imported into the United States from Great Britain, during the last fiscal year, was not far from 65,000 tons, according to the annual commercial and tonnage statements of the Register of the Treasury. Those statements show, under different heads, the following importations:

Wire,	lbs.	92,064
Nails, screws and spikes,		750,502
Cables,		2,292,192
Wrought, for locomotives and engines,		52,855
Malleable,		17,599
Saws,		4,348
Anchors,		28,202
Anvils,		1,268,440
Blacksmiths' hammers and sledges,		103,403

Castings,	lbs.	962,660
Hollow ware, sad irons, and hinges,		970,143
Axletrees, nail rods, &c.,		371,932
Sheet and hoop iron,		5,974,960
Pigs,	cwt.	474,147
Scrap,		27,868
Bar,		582,685
Steel,		89,757

Equal to 65,175 tons, valued at $3,627,313, imported into this country from Great Britain alone.

CANAL TOLLS.

TOLLS ON THE ILLINOIS AND MICHIGAN CANAL.

We published in the April number of the Western Journal, a table of the rate of tolls adopted by the Commissioners. It seems, however, that these rates were considered too high, and have since been revised. We take the following table of rates from the Missouri Republican:

The following are the rates of toll as revised and determined upon by the Board of Trustees:

1. *Rates of Toll on Boats.*

	CENTS.	MILLS.
On each boat used chiefly for transporting common freight 3½ cents per mile,	3	5
On each boat used chiefly for transporting mineral coal, 3 cents per mile,	3	
On each boat used for transporting passengers, 6 cents per mile,	6	

2. *On Passengers.*

On each passenger, 8 years old and upwards, 4 mills per mile,	0	4

Note.—Each passenger 8 years old and upwards shall be allowed 60 pounds baggage or household furniture (if belonging to or used by such passenger) free of toll.

3. *On the following named articles toll will be computed according to weight, that is to say, the following rates per mile will be charged on each 1000 pounds, and in the same proportion for a lesser or greater weight:*

	MILLS.		MILLS.		MILLS.
Ale,	10	Grease,	7	Peas,	10
Agricult'l Implem'nts,	10	Ginseng,	10	Provis'ns, salt & fresh	10
Animals, domestic,	10	Grindstones,	6	Pork,	8
Anvils,	15	Gypsum,	6	Pot and Pearl Ashes,	10

	MILLS.
Ashes, wood,	4
Beef,	8
Beans,	10
Bread,	10
Beer,	10
Butter,	10
Baggage,	20
Beeswax,	10
Bacon,	8
Brooms,	10
Broom handles,	10
Broom corn,	10
Bristles,	10
Burr Blocks,	12
Barley,	10
Buckwheat,	10
Blooms,	15
Bran,	5
Bark, tanners'	5
Barrels, empty,	10
Coffee,	12
Crockery, in crates,	15
Cheese,	10
Crackers,	10
Cordage,	10
Cotton Bagging,	10
Cotton, raw, in bales,	10
Coopers' Ware,	10
Carpenters and Joiners' Work,	10
Carriages,	10
Candles,	10
Corn,	3
Cider,	8
Clocks,	20
Charcoal,	5
Coal,	1
Coke,	2½
Clay,	2
Eggs,	10
Flour,	7½

	MILLS.
Glass and Glassware,	15
Hemp,	7½
Hides,	10
Horns and Tips,	10
Hair,	10
Hoops,	15
Hams,	10
Household Furniture, accompanied by and belonging to families emigrating,	15
Hay and Fodder,	5
Heading,	3
Hoops & materials for,	3
Hubs, boat knees and bolts,	2
Iron, pig and scrap,	7½
Iron, wrought or cast,	12
Iron Tools,	15
Ice,	1
Leather,	15
Lard,	8
Lime, common,	3
Lime, hydraulic,	3
Lead, pigs and bars,	1
Merchandise, including dry goods, groceries, hardware, cutlery, crockery, and glassware, and all articles not specified	15
Manilla,	10
Malt,	7½
Molasses, in hogsheads or barrels,	12
Meal,	5
Marble, unwrought,	6
Marble, wrought,	15
Marble dust,	9
Millstones,	12
Machinery,	12

	MILLS.
Porter,	10
Palm Leaf,	10
Potters' Ware,	10
Pitch,	10
Potatoes and other vegetables,	6
Paper,	15
Powder,	15
Rags,	9
Rosin,	9
Rye,	6
Salt,	6
Seeds,	10
Salæratus,	10
Salts of Ley,	10
Soap,	10
Sumach,	10
Sugar,	12
Skins, animal,	10
Sleds and Sleighs,	10
Saddle trees,	10
Shorts and Screenings	5
Ship stuff,	5
Spikes,	12
Starch,	10
Shot,	10
Steel,	15
Spirits, except whisky	25
Straw,	4
Staves,	3
Sand and other earth,	2
Stone, cut and sawed,	3
Tallow,	8
Tar,	10
Tombstones, not marble,	6
Trees, shrubs & plants	6
Tobacco, not manufactured,	7½
Tobacco, manufact'd,	15
Veneering,	10

	MILLS.		MILLS.		MILLS.
Flax,	10	Mechanics' Tools,	15	Vinegar,	10
Fruit, home,	10	Manure,	3	Wheat,	7
Fruit, foreign,	15	Nuts,	9	Whisky & high wnes	10
Fish,	10	Nails,	12	Wool,	10
Furniture, household,	20	Oats,	3	Woodenware,	10
Feathers,	15	Oil Cake,	6	Wagons and other vehicles,	10
Flags, for chairs,	15	Oil, linseed and corn,	12	White Lead,	15
Furs and Peltries, all kinds,	25	Oil, lard,	10		
		Ore,	3		

4. *On the following named articles toll per mile will be computed by number or measure:*

	CENTS.	MILLS.
On each 1000 feet (board measure) of lumber per mile,	1	
On each 100 cubic feet of timber, hewed or round, if transported in boats,	1	
On same, if transported in rafts,	2	
On each 1000 brick,	1	
" 1000 laths or shingles,		5
" 100 split posts, or rails for fencing,	1	
" cord of wood for fuel,	1	2
" cubic yard (27 cubic feet) dressed stone,		5
" cubic yard (27 cubic feet) undressed stone,		2

In ascertaining the amount of toll chargeable on any article, the weight of the cask, box, bag, crate, vessel or thing, in which said article is contained, shall be added to the weight of the article itself, and the toll computed accordingly.

If two or more articles, chargeable with different rates of toll, shall be contained in the same cask, box or vessel, the whole shall be charged with the highest rates of tolls chargeable on any article so contained.

The rafting of timber on the Canal or the Feeders is prohibited, unless by written special agreement with the Superintendent of the Canal. Any violation of this order will subject the person violating it to a fine of ten dollars for every such offence.

The first boat that arrived at La Salle from Chicago, was the packet *St. Louis*, on the 27th April last. The canal is now in complete operation, and although there is a great variety of opinion in regard to the effect which it will have upon the commerce of St. Louis, all agree that it will be of great benefit not only to the district through which it passes, but to the country at large. The effects which this line of transportation is destined to produce upon St. Louis and Chicago, or the intermediate towns, can only be determined by time. We think, however, that it is safe to conclude that whatever benefits the country, must, in the end, prove beneficial to the towns, especially if the towns are themselves producers;

it may be otherwise if they should be simply commercial. Believing that the future growth of St. Louis will depend more upon manufactures than commerce, we are decidedly of opinion that the Illinois Michigan Canal will be of incalculable advantage to its prosperity.

STEAMBOATS BUILT AND LOST ON THE WESTERN WATERS.

THE third number of the *Western Boatman* is before us. It is conducted by Mr. Embree, and contains a great deal of useful information on the subject of boats, boatmen, navigation, river laws, &c. In our opinion, it is a most useful work, and ought to be encouraged. Mr. Embree has furnished a list of steam boats built on the western rivers, down to the year 1835. Since that time the number built has been vastly greater. This list, however, shows the manner in which the *death* of boats is brought about. The *Boatman* says:

From the foregoing list we find 684 boats, measuring 106,135 tons, averaging 155 tons each: 344 worn out or abandoned, 50¼ per cent.; 238 snagged or otherwise sunk, 34⅞ per cent.; 68 burnt, 10 per cent.; 17 lost by collisions, 2½ per cent.; 17 explosions, 2½ per cent.

The 17 boats which had their boilers burst, were the Washington, Union, Atlas, Caledonia, Porpoise, Cotton Plant, Tallyho, Tricolor, Car of Commerce, Alabama, Hornet, Kanawha, Helen McGregor, Huntress, Gen. Robinson, Arkansas, and Teche.

Average age of boats worn out or abandoned, five years nearly.

Average age of boats sunk, burnt or otherwise lost, four years nearly.

P. S. Boats of which we have no dates of loss are calculated by the accounts obtained.

BUILDING.

Built in Pittsburgh District,	304
Built in Cincinnati District,	221
Built in Louisville District,	103
Built in Nashville District,	19
Built in other places,	37
Total,	684

Number of boats built in each of the following years: 1811, 1; 1812, 0; 1813, 1; 1814, 2; 1816, 5; 1817, 8; 1818, 31; 1819, 34; 1820, 9; 1821, 7; 1822, 10; 1823, 14; 1824, 13; 1825, 32; 1826, 60; 1827, 24; 1828, 35; 1829, 55; 1830, 43; 1831, 61; 1832, 80; 1833, 48; 1834, 59; 1835, 52; total, 684.

Note.—We have accounts of the explosion of the following boats, not in the list: Constitution, 1817; Heriott, 1817; Grampus, 1828; Feliciana, 1825; Fair Star, 1830; Rumapo, 1826.—[*Missouri Republican.*

AGRICULTURE AND AGRICULTURAL IMPROVEMENTS.

FARMER'S CLUB.

The "Farmer's Club" held its regular monthly meeting at Dr. Thomson's residence.

It was remarked that Mr. Affleck, of Mississippi, in an interesting article furnished to De Bow's Review, an ably conducted periodical, on the subject of the Cherokee Rose as being suitable for live fences, expressed the opinion that though an evergreen at the south, it would stand our northern winters. Mr. Holcomb said that he understood Gen. Brandon, of Mississippi, had sent, a year or two back, several hundred young plants to Mr. George, of Baltimore, but had not heard how they succeeded. Dr. Thomson observed there was no doubt of their standing the winters of Baltimore or Delaware, that he had a shrub obtained of Mr. Landreth, then on his grounds, which had been there two or three years. According to Mr. Affleck's accounts, it is being extensively used in the southern States, as a live fence, plantations in the neighborhood of Natchez, as well as in parts of Louisiana, being fenced with it, and nothing can exceed its beauty and utility as a fence. Doubts were expressed by the Club, whether it was as well adapted as the Osage Orange for more northern latitudes. Mr. Holcomb remarked that in a southern and western trip he had recently taken, he had made many inquiries. and what personal examinations he was able to, as to the fitness of this latter shrub for live fences; he was of opinion that it would, at no distant day, constitute the principal fences in the Western, Middle, and perhaps Northern States. Unlike the New Castle Thorn, it seemed to grow on almost any soil. You might plant the seed, drilling it as you would a row of corn—the hedge required no bank to it. They were bringing the seed from Texas, and the Red River country by hundreds of bushels. One bushel will enclose sixty-four acres. For the western prairies it would prove invaluable, and scarcely less so to us, where fencing material is so high. Common cedar rails are now selling for eight dollars a hundred with us.

Dr. Thomson.—I have plants two years old, of the Osage Orange, in my garden; I wish the Club to examine them, and I wish to present them with specimens of them. This subject of live fence is one of vast importance—second to no other in the whole range of Agricultural economy. Several years back the late Dr. Gibbons, Dr. Darlington of West Chester and myself at the instance of some of our Western Agricultural friends, acted as a committee in investigating and reporting upon the value of the New Castle and Virginia Thorn for live fences. Our report was unfavorable to their general use. From what I have seen of the Osage Orange, and what I have heard of its habits, its hardiness as a shrub, its thriftiness of growth, I incline to think with Mr. Holcomb, that it is likely to furnish with live fences, vast rural districts of our country.

Mr. Sawdon—(Having carefully examined the shrub.) The thorn very much

resembles the English Hawthorn at the same age—it is well covered with thorns. I see no reason why it should not make a good fence.

Mr. Jackson—I have started a young nursery of it, and hope to have a good many plants ready by next spring.

Mr. Gibbons (an invited guest.)—If the Osage Orange should indeed be found to supply the *desideratum* of a live fence in a country where there is so much timber annually destroyed, and such an immense expense incurred in erecting fences, it would take off a great burden from agriculture, which, according to the late Nicholas Biddle, is annually taxed in connexion with the building and keeping up of fences, in a sum that would almost embarrass the British Exchequer.

Major Jones alluded to a hedge of Osage Orange put out many years since in Maryland, by John Randall, Esq., Civil Engineer, and one still earlier was spoken of, put out by Mr. Mapa, near the "Rising Sun," Philadelphia county, as also the Osage hedges surrounding the beautiful residences along School House Lane, near Germantown.

In reference to the improvement in agriculture in New Castle county, within the last ten or fifteen years, the question was suggested as to what extent it had improved—what was the probable per cent?

D. W. Gemmill—The improvement throughout the county has been very great; it is difficult, perhaps to fix the average per cent., but if we take the farms belonging to members of this Club, with which we are all acquainted, there is no doubt that the production has been increased full fifty per cent. Go back fifteen years, and I have little doubt that the agricultural productions of New Castle county have been doubled. Lime and clover have been the great agents.

B. Jackson—If you select particular farms, the increase has been two or three hundred instead of fifty per cent.; fifty may approach an average for the county. As Mr. Gemmill says, lime and clover, and an improved husbandry—better ploughing—better preparation of the ground—more system, more care of stock, more economy of manures have all contributed.

Major Jones—The increase in the value of real estate has been somewhat in proportion to its increased productions; by an improved husbandry, the capital, while yielding twice its former income, has itself been doubled in amount.

Major Andrews—Suppose this so, that the improvement has been progressive to this time, how much farther may we improve to advantage? At an agricultural party at Sir Robert Peel's, as reported in the "Farmer's Library," one of the speakers—a practical agriculturalist—remarked, that "good high farming, was by far the most profitable; the starvation principle was a losing game; if we borrow from the earth, we must repay, or we should soon find an empty exchequer." They have better markets and cheaper labor than we have, and can afford greater outlay, still I think we may go on improving as yet.

Mr. Jackson—Yes, very far beyond what we are at present.

Mr. Gemmill—I should have no fear of using capital in improving the best of

our land still farther, by the judicious use of lime, &c. I say judicious, for I know some instances, where land has been injured by the injudicious use of lime.

Mr. Sawdon—We may go on improving for a quarter of a century, and then be behind the improved agriculture of England; probably our markets will not allow our using the concentrated manures as they do, but lime we may buy.

Major Jones—The merit with us is not alone to make the two blades of grass grow, but to find where the one or two blades, as the case may be, may be sold. England scarce emptied our granaries one year, and it nearly bankrupted her. This was a year of famine which may not soon make a market for us again.

A number of copies of the "*Western Journal*," an agricultural periodical, ably conducted at St. Louis, were presented, in which the importance of the home market is thoroughly and ably discussed by M. Tarver, Esq., the senior editor.

Copies of the "*Farmer and Mechanic*" were presented and examined, and its merits highly commended.

The regulated Cultivator and Corn Planter, invented by Mr. Edson Hart, of New Albany, Indiana, was examined, and arrangements made for a practical trial in the field. Some members of the Club thought it promised to be a valuable implement.—[*Delaware Republican.*

WATER-ROTTED HEMP.

The following letter from the Hon. Charles S. Morehead, a representative in Congress, will be read with interest by our numerous agricultural friends:

Washington, *May* 21*st*, 1848.

Dear Sir:—I received your letter of the 14th inst., and herewith enclose to you according to your request, the joint resolution passed at this session of Congress, respecting contracts for water-rotted hemp, for the use of the American navy. You will perceive that the inspection and delivery of the hemp are to be at the place of purchase. Contracts may be made for a term of five years, not exceeding the average price for the last five years. I do not know certainly what this average is, having seen different statements on the subject. I fear that the statement I have seen published, (that it amounts to $238 per ton,) is not entirely correct. The Chairman of the Committee on Naval Affairs estimated the quantity needed annually at about 1,000 tons. Our commercial marine, when the character of the hemp shall be fully established, will require much more.

You ask if hemp is not used in France and other foreign countries, in the manufacture of canvas or sail-duck. I answer, it is, and its manufacture is becoming quite extensive in our own country. I have applied to a distinguished member of Congress, intimately acquainted with this subject, who has kindly promised to furnish me with the statistics of this manufacture in the United States as soon as he can prepare them. I understand that the best dew-rotted hemp may be used for duck.

This manufacture would become much more extensive, but for the unfortunate

discrimination in the tariff act of 1846 against it. Singularly enough, a duty of thirty per cent. ad valorem, is levied on raw hemp, and twenty per cent. only on the manufactured article, while the additional cost of the transportation of the more bulky raw material, increases the discrimination, and acts as a bounty to the manufacturer abroad, in all that is intended to be brought to this country. Formerly Russia exported about four times as much raw hemp as that in a manufactured state—I understand that this is not now the case, so far as this country is concerned, but our commercial tables have not yet been published, and I cannot speak with accuracy.

The entire product of hemp in Russia has been differently estimated. Perhaps that which places it at two hundred and forty millions of pounds is not far wrong. One-half of this amount is exported either in its crude or manufactured state, and the home value of which, some years ago, was estimated at $10,000,000.

France produces about one hundred millions of pounds of hemp per annum, but this has not been sufficient to supply her home consumption, and she imports from Russia and Italy seven or eight millions of pounds more, half of which, or more, is used in her Navy. The Italian hemp, I am told by those who have seen it, is a soft and beautiful article, and prepared with great care, but inferior to the Russian for the manufacture of cables on account of not imbibing or retaining pitch as well.

Hoping that the hemp growers of the west may be benefitted by a more liberal spirit on the part of the General Government towards this great interest,

I remain very truly your friend,

C. S. MOREHEAD.

P. S. Since writing this letter, I have received an accurate statement of the amount of Foreign and American Hemp purchased by the government, which I herewith enclose to you.

I send you the President's Message, &c., for the year 1843, in which, beginning at page 604, you will find an interesting document on the cultivation and fabrication of hemp.

Statement of Foreign and American Hemp contracted for and purchased from 1st of January, 1842, to 1st February, 1848.

FOREIGN HEMP.

Contracted for.	*Tons.*	*Rate.*	*Aggregate.*
Feb. 14, '42, T. B. Curtis,	500	$240 00	$120,000 00
Feb. 3, '43, T. B. Curtis,	688	200 00	137,689 64
Purchased,	753	252 57	190,185 21

Note.—Of the foreign hemp purchased, there were 174 tons at the rate of $299 80 per ton, a remarkably high price, and which affects the average price of the foreign hemp materially.

Total number of tons of foreign hemp, 1,941—total cost, $447,874 81—average price per ton, $234 74-100.

AMERICAN HEMP.

Contracted for.	*Tons.*	*Rate.*	*Aggregate.*
Sept. 25, '44, Francis Cox,	200	$195 00	$39,000 00
Jan. 23, '45, do.	100	195 00	19,500 00
Do. do.	50	230 00	11,500 00
Do. do.	250	219 00	54,750 00
Jan. 26, '46, American Hemp Company,	750	222 50	166,875 00
July 13, '46, G. J. Pillow,	90	200 00	18,000 00
Aug. 29, '46, G. W. Billing,	110	220 00	24,200 00
Do. do.	110	210 00	23,100 00
Do. do.	110	200 00	22,000 00
Purchased at average,	242	205 78	49,798 76

Total number of tons of American hemp, 2,012—aggregate amount paid, $428,723 76—average price per ton, $213 08.

You will see in averaging the foreign hemp that 688 tons are included, contracted for 3d February, 1843, more than five years before the passage of the resolution, and which was purchased at $200 per ton. I do not think that this can be fairly included, and if not, the average price would be as high as has been stated.

C. S. MOREHEAD.

[RESOLUTION—PUBLIC—NO. 5.]

Joint Resolution respecting contracts for Hemp, for the use of the American Navy.

Resolved, by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Navy be, and he is hereby authorized, if, in his opinion, it will be advantageous to the public interest, to make contracts for any term not exceeding five years, for the purchase of American water-rotted hemp for the use of the United States Navy, provided the same can be had of equal quality with the best foreign hemp, and at a price not exceeding the average price of such hemp for the last five years; the inspection and delivery to be at the place of purchase.

Approved, May 9, 1848.

JOURNAL OF MANUFACTURES, DISCOVERIES AND IMPROVEMENTS.

KAOLIN AND PIPE CLAYS OF MISSOURI.

Gentlemen:—We have received some specimens of the kaolin and pipe clays referred to by Mr. Frederick Woolford, in his letter recently published in your Journal, but have not found leisure sufficient to analyze them. Judging from their physical properties alone, we believe that two of them, from different localities, will prove to be nearly identical in constitution to the best kaolins, probably

possessing only a slight excess of alumine. One is slightly tinged red, and is colored by the oxyde of iron—the other is white, and with a due proportion of felspar and quartz, would no doubt furnish a beautiful porcelain. The felspar sent by Mr. Woolford, with these clays, is, we think, too much tinged with the oxyde of iron to produce a white porcelain; but from a specimen of granite sent with them, which resembles the graphic granite of New York and the New England States, it is probable that felspar of a suitable quality will be found in the vicinity of the kaolin. The felspar is beautifully white, but the quartz, though found in its usual proportion, has not the regular distribution in layers most generally observed in graphic granite. This is the first specimen of graphite granite, properly so called, which I have seen from Missouri.

The other specimens marked "kaolin," approach more nearly the nature of pipe clay. The excess of alumine in these is too great to render them useful in the manufacture of porcelain, unless as is practised at Sevres, in France, they are submitted to frequent washings to deprive them of their alumine. Compared with a specimen of kaolin in my cabinet, from Limoges, in France, they are somewhat too tenacious—forming what is termed a *long paste*. In other respects they are nearly identical in physical properties.

The pipe clays sent with these kaolins are of the finest quality, and must, at some future day, prove highly valuable to the manufacturer of queensware, flint or stone ware, and *other potteries*.

We regard the discovery of these clays as being of immense importance to the manufacturing interests of the State; for, among the earthy minerals, none are more useful in supplying the wants, the convenience, and even the luxuries of life than the clays—essentially composed of two ingredients—silex and alumine in varying proportions. Yours very respectfully,

H. A. PROUT, M. D.

Note.—We will endeavor to notice more fully these specimens when we shall have made an analysis of them.

CONSUMPTION OF SMOKE.

Gentlemen:—In accordance with promise I resume the subject of Smoke—its Consumption and Prevention. In my last I gave you a rough description of C. Y. Williams' Argand Furnace for the prevention of smoke. The principle of its operation is the consumption of the volatile gases emitted from the fresh supplies of coal thrown into the furnace; at which time the gasses are too voluminous to be properly ignited in furnaces of the ordinary kind. The waste of fuel arising from this source, is owing to the want of a proper quantity of oxygen being admitted in the proper place. It is urged by some as an argument against such plans, that the admission of the atmospheric air tends to cool the furnace, and consequently prevents the object desired. Such arguments appear futile when we take into consideration the chemical properties of light, heat, &c.; for it is definitely

ascertained, that to properly consume carbon, it requires ten volumes of oxygen to one of carbon. And when we examine the construction of our furnaces, it will appear evident that they do not admit this proportion of oxygen through the grate-bars when clear of clinkers; hence comes the volume of vitiating smoke from the smoke stacks. It is also demonstrated that oxygen will, (like carbon surrounded by oxygen,) burn brilliantly when surrounded by carbon. Thus you will perceive that by the peculiar construction of the Argand Furnace, the oxygen is admitted through the pierced tubes, (projecting up into the space between the boilers and their foundation,) with 1-4 inch holes, one inch apart; and those jets of oxygen being surrounded by the volumes of carbon as they escape. Brilliant lights are produced from each jet. These jets of flame producing their quantum of heat, the visible effects of this process is likened unto as many trees of fire as there are projecting tubes. Every careful experimental test of this furnace has given all, or more than its inventor claimed for it—a saving of twenty-five per cent!

There are other modes of consuming the volatile gases emitted from coal; amongst which is one known as *Ivison's plan*, which consists in throwing into the space between the fire and the boiler, a quantity of steam through a fan shaped jet. The theory of this plan is, that the oxygen of the steam combines with the carbon of the smoke, thereby producing combustion. The hydrogen of the steam burns of its own inflammable qualities. This plan answers very well so long as every thing keeps in good order; but the jet pipe is liable to be burnt, which frustrates the design. Now, to make a cheap application of this theory, let all our ash-pits be made so as to hold five or six inches of water, and the grate bars kept clear, so that when the clear, bright rays of the fire strike the water, and the hot ashes fall into it, the increased evaporation which takes place from these causes will make the fires burn more effectually than when the grate-bars are choked up with cinders, and the ash-pit filled with ashes. And do not let our firemen imagine to themselves that by keeping the ash-pit full of hot ashes they are thereby economizing fuel. It is very erroneous.

Another plan for the better combustion of coal, is one known by the title of *Jukes' plan*, which consists of moving grate-bars—which are in the form of an endless chain, moving on two rollers, at the rate of one inch per minute. One roller is placed about eighteen inches in front of the fire doors; on this projecting part of the bars the fireman spreads his coal, the bars moving forward under the doors, (which are generally about three and a half inches higher than the bars,) thus leaving an even layer of coal. The bars moving forward bring the coal in contact with the hot fire; then it commences to emit its crude gas. These gases have then to pass over the whole of the burning fire, whereby they become thoroughly burnt. The bars travel on and drop their ashes at the extremity of the pit; then passing over a gauge they are cleared of any cinders which may have accumulated during the burning of the coal.

If firemen would but study this, they might partially accomplish this object without endless grate-bars. Let the fireman, (when charging,) leave his coal in front of the fire. It will there coke; the fire behind it will burn the carbon in its passage over it. Then, when properly coked, take his rake, break, and spread it back. Thus he will have a bright, red, and even fire, and the smoke will have but a narrow chance to escape. M. F. P.

THE BOOT, SHOE AND LEATHER TRADE.

The history of this manufacture is a striking illustration of the boundless ingenuity of man, and of the multifarious wants of civilized life. If we look abroad (says a writer on this subject) on the instruments of husbandry, on the implements of most of the mechanic trades, on the structure of a vast multitude of engines and machines; or if we look at our own clothing—shoes, boots, gloves, caps, &c.; or at the furniture in our houses, the books on our shelves, the harness of our horses, and even the substance of our carriages, what a multitude of instances and forms of this manufacture, wrought out by human ingenuity, meet our eye! What an aptitude has this single material for the relief of our necessities, and the supply of conveniences, in every state and stage of life! Civilized society would suffer immense inconvenience and discomfort from the loss of this one article.

It is a curious, but true reflection, that, though the workers of the article, particularly shoemakers, have generally been ranked low in society, and even among their fellow mechanics, yet from that craft have sprung many of the most distinguished ornaments of our race—scholars, poets, philosophers, patriots, whose fame is immortal.

The aggregate annual amount expended in the boot, shoe, and leather business of this country, nearly reaches the total value of the cotton crop of the United States. As regards the amount of capital and number of hands employed, says the Troy Whig, the shoe business is said to take precedence of any other branch of manufactures carried on in America, producing commodities to the value of $50,000,000 and giving employment to between 100,000 and 200,000 operatives, men and women.

The statistics of productive industry in Massachusetts for 1846 show that there were made, during the year, the following amount of boots and shoes:

Counties.	*Pairs of Boots.*	*Pairs of Shoes.*	*Value.*
Suffolk,	32,479	47,631	$207,356
Essex,	1,288,170	8,380,179	4,876,534
Middlesex,	321,450	3,090,635	2,274,719
Worcester,	900,028	2,050,207	2,597,422
Hampshire,	20,867	19,293	66,775
Hampden,	9,992	50,697	71,998

Franklin,	34,315	32,020	85,254
Berkshire,	16,168	69,370	105,497
Norfolk,	832,844	1,024,464	2,357,010
Bristol,	46,732	130,246	194,794
Plymouth,	320,850	2,199,030	1,929,418
Barnstable,	30,075	17,500	27,625
Dukes,	240	1,790	3,385
Nantucket,	370	2,300	4,200
Total,	3,768,160	17,128,411	$14,799,140

Amount of leather made in the State in 1846,	3,836,657
Value of shoe pegs made in 1846,	18,206
Value of lasts made in 1846,	80,145
Value of India rubber shoes,	312,090
Total for Massachusetts,	$19,046,238

All this immense quantity of boots and shoes is made by the hand, no machinery being employed except for the manufacture of lasts and pegs. It is said that vast as the supply is, the market is never over-stocked. The twenty millions of pairs made every year in Massachusetts, are not sufficient for the western market, and we learn, from the Rochester American, that western dealers are compelled to leave their orders ahead, or go without the articles. Many dealers west of the lakes found the market so limited this fall, that they were unable to get their usual supply.

The Canada tariff of 1846 placed a duty on the American articles at so high a rate, that it amounts to prohibition. The Yankees, however, were not to be outdone by its operation. Messrs. Brown & Childs, of Montreal, have opened an extensive manufactory there, and employ some 400 workmen from Massachusetts. They are now supplying the dealers in the upper and lower provinces.

The Mercantile Times furnishes a statement of the same manufacture in England; from which it appears that the total amount of leather tanned, tawed, dressed, and curried, is estimated at 50,000,000 lbs., which, at 1s. 8d. per lb., is £4,166,000 as the value of the leather only. Supposing the value of the leather to amount to one-third the value of the articles produced from it, that would show a result of about twelve millions and a half.

The number of hands employed in all the various branches, from the tanner to the finisher of the finest manufacture of leather, is estimated at 275,000; while the wages paid amount to about £7,000,000 sterling, or nearly $34,000,000. Scotland is not included in this estimate.

STAFFORD'S PATENT PROCESS OF PRESERVING BREADSTUFFS.

Several notices of this invention have appeared in the eastern papers, all of them speaking highly of the invention. We have deferred any extended notice of it, until its merits should be to some extent tested. Messrs. E. W. Andrews & Co. of the Empire mills in this town, have had one of the machines in operation upon corn meal, for about one year. About 1500 barrels of this meal, manufactured last spring, was shipped to Europe. It not only performed the voyage of the lakes, canals and rivers of our own country, but after remaining during some of the hottest months in store, it was sold in Liverpool, for from 3s. to 3s. 6d. sterling, per barrel more than the current quotations of the market for corn meal. The enhanced price is understood to have been realized in consequence of the superiority of this process for expelling the moisture, over all others; meal prepared by this process being devoid of any other taste or smell than that which pertains to the natural meal. Heretofore it has been deemed necessary to destroy the germinating principle of grain, to enable it to withstand the vicissitudes of climate, and hence the parched, ill-flavored meal that is usually sent abroad, being divested of much of its nutrition, is rendered entirely unfit for the use of man. Mr. Stafford's theory is, that without the presence of moisture nothing in nature can change. Upon this theory is his machine made to operate. It is simplicity itself. A cylinder armed with flanches on the exterior, is made to revolve in a trough—the inclinations of the cylinder and trough moves the substance to be dried gradually to the opposite side from which it was received. The interior of the cylinder is heated by steam. By this simple process Mr. Stafford is enabled to obtain all that is requisite for preserving grain, flour, meal, &c., for an indefinite time. The heat is uniform, the motion of the article drying is constant, and the ventilation perfect.

So far as we are able to judge of this invention from the tests already made of its utility, we are inclined to regard it of very great importance, particularly to the grain-growing regions of the west. The amount saved to the Government would be large if they would supply the ships of the navy with flour and meal sufficient for a long voyage, with a perfect assurance that they would remain good for any length of time. So of whale ships, &c. Mr. Stafford richly deserves not only the large pecuniary benefit which is already made sure to him, but also the gratitude of the world.

The Cleveland Herald says: Flour from Ohio wheat, dried by Mr. Stafford's process, loses 8 per cent. of its weight. This fact has been recently tested at Elyria. When, therefore, dried flour is exported the miller will save transportation upon 16½ pounds of water to each barrel, the consumer paying at the same rate for 196 pounds of dried flour that he would for 212 pounds of undried. The consumer, then, has the certainty of purchasing and having flour always sweet and fresh, instead of running the risk of buying flour which is stale, musty, or sour.—[*Elyria (Ohio) Courier.*

SELF-DISCHARGING FLOUR CHEST AND FLOUR PRESS COMBINED.

This is the name given to a new invention for packing flour, recently introduced into some of the Oswego mills. Col. W. J. Pardee has just put one in successful operation in his Congress Mills, and it is believed the invention will very generally take the place of the old system of packing. In construction, it is simple and packs a barrel in about a minute. The garner into which the flour is received from the bolts is capable of holding four hundred barrels. The empty barrel is placed under the garner, which tapers in size to be received by the barrel A shaft, to which are attached blades so constructed and set as to form something like a screw, is let down into the barrel. The machinery sets it in motion, it lifting itself as the flour is let in and packed by the blades. But two men are required to do the packing for three run of stone, a great saving on the old plan.

Those who know any thing of the old system of packing, will at once understand the advantages of this invention, besides the saving in expense. We understand Burckle & Co. have introduced the machine into their mill, and we presume others will do the same. Mr. Kingman is the inventor.—[*Oswego Times.*

ATMOSPHERIC CHURN.

We have been shown a new Churn, invented and patented by Lewis & Johnson, of Springfield, Ill., the 9th of May last, which operates on a new, but correct philosophical principle, and with incredible ease and rapidity. The principle consists in the introduction, by means of exceedingly simple machinery, of the atmospheric air into the body of milk. The air, by its own action, produces the separation of the milk from the butter. The machinery is very simple, and the principle undeniable, and the operation of churning can hardly be said to be labor at all. By this machine, an ordinary churning could be made by a child of four years old, and that, too, without waiting for the cream to rise or the milk to sour.

The names which appear to the following certificate are a sufficient guaranty that the facts therein stated are true:

This is to certify that the undersigned, citizens of St. Louis, and others present, witnessed the exhibition of Lewis & Johnson's Patent Atmospheric Churn, at Scott's Hotel, this afternoon, at 3 o'clock, p. m., when butter was made from new sweet milk in fifteen minutes, and from new sweet cream, skimmed from morning's milk, in less than five minutes. From this exhibition, we are fully satisfied that this is a most useful invention, based and operated upon strictly philosophical principles, ingeniously but very simply brought into use.

John H. Gay, Trusten Polk, John Libby, Thos. S. Warne,
C. M. Doolittle, Cincinnati, W. P. Fenn, firm of Clark & Fenn,
P. P. Knapp, do., Nath'l. Lanburn, Knox county, Ills.
W. C. Scott, proprietor of Scott's Hotel.

June 1*st*, 1848.

M. TARVER,

ATTORNEY AND COUNSELLOR AT LAW,

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1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal Improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

AUGUST, 1848.

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The subscriber will reduce the charges to the planter, on tobacco inspected at his warehouse, to one-half of what has heretofore been paid by them in this city—say from seventy-five cents to thirty-seven and a half cents per hogshead, and as soon as the tobacco is sold and weighed, will pay to the planter the proceeds of his tobacco, without any extra charge.

All tobacco purchased at his house, shall be turned out coopered to the satisfaction of the purchaser, and shall be delivered at any time during the day from sunrise to sunset. March 1, 1848. GEORGE W. JENKS.

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N. B.—To whom reference will be given by calling at the School Room.

March 1, 1848.

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M. TARVER and T. F. RISK, Editors and Proprietors.

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THE

WESTERN JOURNAL.

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ART. I.—EDUCATION.

In setting forth the objects of our work in the first number of the Western Journal, we promised to advocate the importance of establishing an efficient system of education, that would ensure to every free white individual in Missouri, sufficient instruction to enable them at least, to read the Holy Scriptures, and the constitution of the government under which they live, and also to enable every elector to write his own ticket, at the polls of an election. We have, until now, deferred the discussion of this subject, with a hope that some philanthropic and experienced individual would respond to our invitation, and furnish us with a plan for the consideration of our readers. But we have waited in vain. National politics, and the claims of certain individuals to the highest office in the gift of the people, are the absorbing topics of the season, and many seem to conclude that the condition of the people in either a mental or moral point of view, is of little consequence, provided they can elect the man of their choice to administer the goveinment. A lively interest in elections is commendable, but a reliance upon rulers to give direction to human conduct, is opposed to the principles of our form of government; and if continued, is calculated, in time, to introduce a change of system. It is true that such a system would, in a great measure, dispense with the teachers, who might be sent to labor in the field or the shop; and would also save the fees of tuition, as well as the time lost at school. These are truly important considerations in the political economy of the country; but those who incline to favor this system on the score of economy, omit to estimate the expense of a standing army, which would doubtless be necessary to sustain it; and would, in all probability, cost more than the education of every individual in the country. The subject is one which especially addresses itself to the statesman, and presents for his consideration the simple point, whether we shall abandon the troublesome experiment of governing ourselves, and return to the ancient, and more simple method of imposing the entire burthen upon one

individual! As the consideration of this point, however, does not properly come within the scope of our work, we must leave it to others, while we proceed to discuss some of the preliminary topics involved in the subject of education. We consider it rather unfortunate for our purpose, that the importance of this subject is so generally admitted; for, owing to this general assent, we apprehend we shall be listened to as one who proposes to repeat a tale thrice told, especially at a season like the present. But we are pledged to the performance of a great duty, and we must redeem this pledge while it is in our power, lest the time should come when we may not labor, and our work remain unfinished.

Our present object is to discuss some of the evils of ignorance, rather than to propose a system of education. We have supposed that the importance of education is generally, if not universally admitted; but this admission is nothing more than that easy assent which saves the mind from the trouble of examination and reflection, and which rarely leads to action; for it is an assent without conviction. Intelligent men are not generally in the habit of considering the subject of universal education as one involving their individual interest or happiness, and are apt to conclude that the ignorance of others is of no disadvantage to themselves. Indeed, it may be affirmed that many base their calculations and hopes of success in their schemes of operation, upon the ignorance of the community to which they belong, These consider ignorance as a commodity in which they possess a sort of property, and therefore, we do not expect to enlist such individuals in the cause of education. But we entertain a hope that such as do not calculate to profit by the ignorance of others, will readily co-operate in some well devised plan of general education, provided we should be able to convince them that it will be the means of promoting their individual interest and happiness.

Man possesses a physical and a moral nature—the one selfish, the other social—each endowed with instincts and desires, which continually conflict with those of the other; but when subjected to the control of an enlightened understanding, they kindly harmonize, and acting in concert, under the guidance of reason, conspire to elevate his condition to that exalted state for which he was designed in the beginning.

The wants and necessities of our physical nature are primary and imperious: and hence, self-love is the principal source of human action, and may be regarded as the chief agent in establishing the first organic forms of society. A sense of weakness and of danger prompted the individual to seek social aid and protection; but this point being obtained, the selfish nature no longer acted in concert with the social—and while each individual sought to appropriate the largest share of the social benefits to his own use, there was none to protect and sustain, in its purity, the social institution. And finally: mere intellectual intelligence, unmodified and unrestrained by moral improvement, enabled a small portion of the community to appropriate to themselves all its advantages; while they unreasonably claimed to be protected in the possession of these advantages by

those from whom they had been taken. And thus, self-love became the destroyer of the institution which it had aided in establishing.

Such is the history of the ancient institutions, and it is obvious to every intelligent mind, that all modern governments are in danger of dissolution from the same cause; and it matters not what their form, or upon what basis they may have been established, their tendency to the same destiny must ever continue, until mankind in general shall comprehend their true interest, and, adopt the principle that their *individual happiness depends upon the social condition of the community of which they are constituents.* This is a cardinal principle in moral economy involved in the nature of man as a social being, and its observance strongly enjoined by the precepts of christianity.

The desire of happiness, or of a better condition, is inherent in man's nature; and the Creator has not only endowed him with faculties suited to the enjoyment of a high degree of physical and moral pleasure, but has also supplied the means of gratification; but the discovery, development, and application of these means are confided to man, and hence the necessity of mental and moral improvement.

Mental improvement merely, although necessary to the attainment of a state of civilization, cannot elevate or sustain it beyond the degree of moral improvement attained by the community. The average degree of moral improvement, if we may so speak, is the true standard of civilization, and the degree of individual happiness, whether below or above this standard, must ever be more or less governed by it. No monopoly of knowledge or wealth can elevate the possessor above the influence that the ignorance and vices of others exert over his condition, nor protect his mind from a continual state of inquietude, induced by these causes. An individual may be learned in every science, and rich in the possession of every commodity necessary to human comfort; but if his lot is cast in a community that is ignorant and vicious, he is surrounded by a moral pestilence as fatal to his happiness as would be the malaria of the Pontine marsh to his physical health, were he confined within its poisonous influence. There can be no community of taste, sentiment, or sympathy between such an one and his unfortunate countrymen, and his dwelling would be in the midst of a moral desert, not less lonely or dangerous to his happiness, than the pathless wilds of an uninhabited continent.

We can imagine but one way of ameliorating the condition of one in such circumstances, and this, by improving the intellectual and moral condition of his cotemporaries. His desire for intellectual and moral enjoyments would, in a measure, be gratified by imparting his knowledge to others, and as their minds became enlighted, the causes of error would cease, and the fountain of vice disappearing, that of virtue would be opened in its stead. Sympathy and social love would take the place of enmity and hatred, and harmony being established, the benefactor, rejoicing in his labors, would repose in quiet and safety.

The people of this country are wont to boast of their free institutions, their

general intelligence, and the rapid progress which we are supposed to be making in the march of civilization; and in many respects, but more especially in regard to the excellence of our political institutions, we have just cause of gratulation. For, never before in the history of man has so large a portion of the human family enjoyed the protection of laws which exerted so little restraint upon individual pursuits; but even here the evils of ignorance and vice exist to an extent which detracts much from individual and social happiness. Where is the individual of learning and refined taste who does not feel the need of social intercourse with congenial minds, or where the possessor of great wealth who is free from the apprehension of being reduced to poverty by the machinations of bad men? While all confide more in locks and bars, than in the morals of the community; and like sentinels placed to watch the movements of a wily foe, dare not sleep at their post lest they should be surprised and plundered. The patriot also, lives in a state of continual inquietude, lest designing men, by unwarrantable practices, should mislead the ignorant, and taking advantage of their prejudices, excite them to the support of measures calculated to subvert the principles of government, and destroy the institutions of the country. Nor is the condition of the ignorant and destitute one of more quietude—for, always mindful of the advantages which the rich and the intelligent enjoy, and magnifying in their own minds the happiness which is supposed to attend these advantages, they cherish a spirit of envy and distrust, which usurp the place of sympathy; and hence they bestow their confidence upon those who belong to their own ranks, or upon unprincipled dissemblers, who seek their own aggrandizement, regardless of the means of attainment.

These are evils which are felt and complained of throughout the land, but those who complain most generally do least to correct them; for such seem to conclude that misery in this life is the inevitable lot of man, and that it is little less than sinful to remove the cause, and thus making a virtue of wretchedness, they evince a kind of savage satisfaction in being able to suffer more than their neighbors.

In considering the nature and cause of all these evils, we conclude that they are mainly attributable to ignorance, and consequently in proportion to the advancement of intellectual and moral improvement, they will cease to exist. For, the desire of happiness being inherent in the nature of man, it is absurd to suppose that he would deliberately seek to be miserable if his mind was fully enlightened in regard to the consequences of his actions; and hence we conclude, *that a just knowledge of the rewards of obedience, and a proper appreciation of the consequences of moral dereliction would remove the cause of all those moral delinquencies denominated crime*, as well as of that general state of inquietude which detracts so much from the happiness of those whose lives are comparatively free from vice. And we are persuaded that the annals of crime in every country will sustain this opinion. Out of 41,500 males taken into custody last

year in London, 13,000 were totally ignorant of even the rudiments of learning, and only 150 could read and write well; and of 20,500 females taken into custody, 9,000 could neither read nor write, and only 14 could read and write well. More than one-third of the whole number were ignorant of even the rudiments of learning, and out of 64,000 only 164 could read and write well. And we may fairly conclude, that of those who could read indifferently, perhaps not one in a thousand had ever been taught the first principles of moral philosophy, either from books, or from their associations in society. It is true that highly educated individuals are too frequently guilty of moral delinquencies; but this does not disprove the correctness of our opinion; for a whole life may be spent in cultivating the intellect, with but little advantage to the moral nature; and it may be esteemed as among the errors of the age, that more consideration is given to intellectual than to moral culture.

A system of education, embracing every individual in the State, may be regarded as essentially necessary to the perpetuation of a republican form of government, and for the attainment of this object, the legislature should be invested with power, not only to raise the necessary means by taxation, but also to compel the attendance of such as might refuse or neglect to avail themselves of the opportunities afforded for instruction. And no male individual should be discharged from school until he had received a course of instruction in moral philosophy and political economy. We do not object to universal suffrage even in the present condition of society; but we are fully persuaded that universal education is necessary to sustain it as a system.

It is generally conceded that there must be at least two parties in all free governments; and there is a philosophical reason why this should continue to be the case, perhaps throughout all time. For, if we should suppose all men to be both intelligent and virtuous, still there would remain that difference of temperament which distinguishes the ardor of youth from the caution of age—the former constituting what may be denominated the motive or progressive power of society, while the latter serves to direct its course and restrain it from violence. These are legitimate and natural party grounds, and political parties formed upon any other than these, must be short-lived, and may be regarded merely as episodes in history, which are calculated to blemish rather than embellish its pages.

The more nearly the strength of parties is balanced, the greater will be the influence of ignorance and vice in the councils of the nation; for the suffrages of the ignorant and vicious are more likely to be given to the candidate whose intelligence and morals do not elevate him above their sympathies. And hence, eminent talent, experience, and virtue become practical disqualifications for office. While *availability* is sought with little regard to the opinions or desires of intelligent and good men, but with reference mainly to the support of those who have no better guide for their actions, than selfishness or prejudice.

Should the intellectual and moral condition of the community demand a con-

tinuance of this policy, it will depress the standard of both private and public virtue, until the organic form of our government shall be made to yield to the dictation of ignorant and designing men. For it would be absurd to suppose that he who has been chosen upon the ground of availability, will rise above the principles to which he owes his elevation.

Those who confer the office, also declare the policy by which the incumbent shall be governed, and this becomes the law of his political existence, and he considers himself bound to obey its mandates, regardless of all other considerations. Such could never be the case if all men were educated, for then, although there might be party strife, yet each would select their candidates from among those who possessed the highest intellectual and moral qualifications, as the best exponents of their policy.

We have not drawn a fancy sketch for the purpose of illustrating a theory, so far from it, we have but faintly depicted the image of things that not only exist, but are deeply impressed upon the minds of millions of the American people. But as much as they deplore this, our downward tendency in the scale of civilization, they make a virtue of necessity, and follow the lead of those who give direction to the destinies of the nation, and thus, by their actions, give countenance to that which they condemn in their judgments.

We have treated this subject with something more than our usual freedom of manner for the purpose of arousing the people of the west from that state of apathy which seems to pervade the general mind in regard to public education. Believing that the cause of the evils which we have endeavored to expose cannot be effectually removed by individual exertion, we must look to the legislature for that assistance which the framers of our constitution designed that it should afford, in redeeming its constitutents from the evils of ignorance.

The grant of lands by the general government, for the purposes of education, although liberal, is totally inadequate to the support of an efficient system, and besides this, its benefits are unequally distributed. For, while the lands donated in one township may be sold, perhaps, for two thousand dollars, that in the adjoining township may only bring one thousand—and the proceeds of each are limited to a territorial area, without reference to the number or condition of the population. These are important objections, which ought to be removed if practicable; for there is no principle more important to be observed by governments than that of an equal distribution of public benefits.

We know the reluctance with which the people of every country assent to an increase of taxes, and it is from this cause that the friends of education have most to fear. But we are persuaded that if men will calmly and carefully examine the subject in all its bearings, they will conclude that no other appropriation which they could make of their means, after the primary necessaries of life are supplied, would so much contribute to the happiness of themselves and their offspring. You toil and submit to many privations, for the purpose of transmitting

property to your offspring, but you leave them in a community where the protection of this property is not less a burthen than would be its acquisition; and the chances are scarcely equal, that the benefits will ever reach your children's children, who stand not only an equal chance of being destitute of property, but of the means of education also. Or, should the wealth which you acquire be transmitted to many generations, still if the present condition of society should continue, it may be well doubted whether it will contribute to their happiness. Would not a guarantee on the part of the State, that every individual should receive a reasonable education, be a more certain and better provision for your descendants, of the third generation at least, than any benefits which you could secure to them by the acquisition of property, with so many chances against them for its enjoyment? Should you propose to educate your son with a view of making him useful to himself and to the country, and indulging the natural desire of a parent, you should establish in his mind those high and ennobling principles of virtue and honor which distinguish and adorn the statesman, this would but disappoint your hopes; for these high qualities would elevate him above the sympathies of his countrymen, and, in their estimation, unfit him for public employment. But if you still desire that he should succeed to the high offices of the country, you must caution him against the study and imitation of those high examples which are supposed to embellish and adorn the history of man, and put him as an apprentice to learn the arts of intrigue and dissimulation under some popular demagogue.

But, although the desire of distinction may lead your sons to seek office, even upon these hard terms, yet we cannot suppose that there is a parent in the land whose heart would not be grieved at their success, if obtained upon principles so debasing and dishonorable.

In conclusion, we invite all those who have had the advantages of a liberal education, and who are, therefore, the better able to appreciate its importance, to give their countenance and support to a system of universal education within our State. To the man of wealth we say, if you desire that your descendants should enjoy the products of your toil in comfort and quietude, appropriate a portion of your income to the improvement of the moral condition of those upon whom they must depend for protection. To the poor man we say, if you desire to place your offspring upon the broad platform of equality with those of the rich and honored of the land—if you wish to improve and elevate their moral nature—to guard them against habits of vice and the commission of crime—to lighten their burthen of labor, and to open to their minds a boundless source of intellectual and moral enjoyment, then come up to this great work, and cheerfully contribute your mite to aid in its consummation.

ART. II—THE COMMERCE AND NAVIGATION OF THE MISSISSIPPI RIVER AND ITS TRIBUTARIES.

CHAPTER II.

Having in the first division of our subject spoken in general terms, of the nature and extent of the country and its navigable streams, we come now to treat of its general history, particularly with reference to its progress in population, commerce and navigation.

For the last sixty years the population of the Valley of the Mississippi has doubled every ten years. At the first census of the United States (1790) it did not exceed 200,000. In 1800, it had increased to about 560,000; in 1810, to 1,370,000; in 1820, to 2,580,000; in 1830, to 4,190,000; in 1840, to 6,370,000; and in 1847, according to the preceding average ratio of increase, it exceeds 10,520,000. In the year 1850, according to such ratio, it will exceed 12 millions, and be about equal to the population of all the Atlantic States.

The history of Missouri alone, however, exhibits a still more extraordinary increase. In 1771, the population was 743;† in 1799, it was 6,005; in 1810, it was 20,845; in 1820, it was 66,586; in 1830, it was 140,455; in 1840, it was 383,702; and according to the same ratio of increase, (173 per cent. decennially,) it is, in 1848, 531,040, being an increase of over 17 per cent. per annum, and the present population, without doubt, actually exceeds that number. But while the decennial increase of Missouri was 173 per cent., that of Illinois was 202, Mississippi 175, Michigan 555, and Arkansas 221 per cent.

The commerce and agriculture of this Valley exhibit a growth as surprising as that of its population.

The first schooner of the Northern Lakes, "the Griffin," in 1679, was freighted with the first combination of commercial enterprise and settlement that reached the Valley of the Mississippi. Thus the rivers of the Valley owe to the great Lakes the introduction of commerce and population.

From that period up to the purchase of Louisiana in 1803, and even later, the fur trade of the French immigrants with the Indians constituted a leading pursuit of the inhabitants, especially of the upper half of the Valley of the Mississippi. These immense rivers and lakes were navigated from Quebec, on the St. Lawrence, to the Yellowstone, on the Missouri, by bark canoes, and the Fox and Wisconsin rivers, connecting the Lakes with the Mississippi, were a chief thoroughfare of the trade.

Next to the canoe came the Mackinaw boat, carrying 1500 weight to 3 tons, and then the keel boat or barge of 30 to 40 tons. The first appearance of the keel boat, in the Mississippi, above the mouth of the Ohio, of which we have any account, was in 1751, when a fleet of boats, commanded by Bossu, a Captain of French Marines, ascended as far as Fort Chartres. This enterprise also, was

†Hutchins.

the first to ascertain, by experience, something of the nature of the navigation of the Mississippi. One of the boats, "the St. Louis," struck a sand bar above the mouth of the Ohio, was unladen and detained two days. Three days after says the traveler, "my boat ran against a tree, of which the Mississippi is full;* the shock burst the boat, and such a quantity of water got in that it sunk in less than an hour's time." This was probably the first boat snagged on the Mississippi. From three to four months was the time consumed at this period, and for many years afterward, in a voyage from New Orleans to the settlements in the vicinity of St. Louis; a voyage occupying a steamboat in 1819 twenty-seven days! but which of late has been accomplished in less than four days!

The annual average value of the fur trade of Upper Louisiana for fifteen successive years, ending in 1804, amounted to $203,750. That part of the province also exported some lead, salt, beef and pork—the Indian goods coming from Canada, those for domestic consumptiou from Philadelphia and Baltimore; groceries from New Orleans, and hardware in small boats from the Ohio river. The annual exports from the lower part of the Mississippi Valley for the year 1802, amounted to about $2,160,000, and the imports to about $2,500,000; the exports consisting of sugar, cotton, rice, indigo, furs and peltries, lead, lumber, cattle, horses, beef and pork, tar and pitch. For the year 1846, the receipts at New Orleans from the upper country, amounted to $90,033,256.

At the period of the introduction of steam upon the Mississippi, 1817, the whole commerce from New Orleans to the upper country, was transported in about twenty barges of an average of 100 tons each, and making but one trip in a year. The number of keel boats on the Ohio was estimated at 160, carrying thirty tons each. The total tonnage was estimated at between 6,000 and 7,000.

In 1834, the number of steamboats on the Mississippi and its tributaries was 230, and their tonnage equal to about 39,000.

In 1840, the number was 285, with a tonnage of 49,800.

In 1842 the steamboat tonnage of the western rivers was returned by the Treasury Department as follows:

New Orleans,	80,993
St. Louis,	14,725
Cincinnati,	12,025
Pittsburgh,	10,107
Louisville,	4,618
Nashville,	3,810
Total,	126,278

In 1843, the number of boats was estimated at 672; tonnage, 134,400.

*By this accident, I lost all I had; I ran the risk of perishing too; for I had thrown myself in a pirogue, but it was so full of goods saved from the wreck that it overset; several soldiers were drowned, and I should have shared the same fate had it not been for a generous Akanza, who, not fearing the severity of the season, leaped into the water and seized me by my riding coat.—[Bossu, vol. 1, p. 114.

In addition to the steamboats, there are estimated to be employed on the same rivers, about 4,000 keel and flat boats.

For the year 1844, the enrolled and licensed steamboat tonnage of the western rivers, was reported by the Secretary of the Treasury at 144,150, which, at an average of 210 tons* for each boat, gives 686 steamboats for that year.

By a subsequent report from the same source, the tonnage had increased by the last of June, 1845, to 159,713, making the number of boats 789.

The reports from the same authority, for 1846 and 1847, exhibit the steamboat tonnage enrolled and licensed at the several districts named below, as follows:

STEAMBOAT NAVIGATION.

	1846.	1847.
New Orleans,	180,504 .81	114.498
St. Louis,	22,425 .92	29.161†
Pittsburgh,	17,162 .94	23.882
Cincinnati,	15,312 .86	17.801
Louisville,	8,172 .26	10.388
Nashville,	2,809 .23	2.707
Wheeling,	2,666 .76	2.660
Total,	249,054 .77 tons.	201.097 tons.

If, then, we apply the average of 210 to this tonnage, it appears that the number of our steamboats in 1846, was 1,190, and in 1847 only 958. At $65 per ton, the aggregate value of the boats of 1846, was $16,188,561. Supposing them to run 220 days in the year, at the cost of $125 per day for each boat, and the annual expense of running 1,190 boats appears to be $32,725,000. Estimating the average number of persons employed on each boat at 35, gives a total of 41,650 persons actually employed upon the steamboats of the Valley of the Mississippi. To this we may add the estimated number of 4,000 keel and flat boats, embracing in their employment 20,000 souls, and costing to build and navigate them, $1,380,000.

To obtain an accurate account of the commerce conducted by these boats, and its actual value, is a thing impossible. We can only make an approximation.

The value of western products received at New Orleans from the interior, for the last five years, is as follows:

1842–43, - - - -	$53,728,054
1843–44, - - - -	60,094,716
1844–45, - - - -	57,199,122
1845–46, - - - -	77,193,464
1846–47, - - - -	90,033,256

Showing an annual average increase of over ten per cent.

*We have adopted this average from the experience of St. Louis for 1846. There were 251 steamboats engaged in the trade of St. Louis that year, with an aggregate tonnage of 53,867, or 210 tons to each boat.

†This sum is too low. The collector of the port reports the amount to be 31,629 tons.

An equal amount, it is supposed, finds its way to the Atlantic cities through Pittsburgh and the lakes and canals of the interior.

There is to be added to these sums the shipments from one port to another of the west, for home consumption, of the products of our manufactories, and other results of skill, industry, and capital. An intelligent committee at Cincinnati, in 1844, estimated the whole of this interchange of commodities at an aggregate of seventy millions of dollars. Estimating its annual increase at ten per cent., it is now equal to $98,000,000.

Thus we have of the domestic products of the Valley of the Mississippi annually put afloat upon its waters, a total of $265,825,620.

The returns, or imports of specie, bullion and goods, from the Atlantic States and foreign countries, by all routes, are estimated as equivalent to the value of our exports of domestic produce. Then we have as the grand aggregate value of the commerce annually afloat upon the navigable waters of the Valley of the Mississippi, the sum of $435,651,240, being nearly double the amount of the whole foreign commerce of the United States.

This is one mode of estimating. Here is another: We have 249,054 tons. Supposing that upon an average, each boat makes 20 trips, (40 voyages,) a year, the whole will carry annually, 9,962,160 tons. Adding the freights of 4,000 flat boats, carrying an average of 75 tons each, making 300,000 tons more, we have an aggregate annual tonnage of 10,252,160; and this, too, is the measured tonnage. The boats of our rivers carry almost invariably more actual tons than they measure. We are not endeavoring to arrive at net value, but the aggregate value afloat, and therefore we have taken no note of the passenger trade, nor of the fact that the exports of one place may be the imports of another. Exports or imports, they nevertheless must be afloat and at hazard. The question is soon solved if we can ascertain how many times in a year each of our tons makes a voyage, and what each of those tons is worth. Our steamboat captains say that our boats make, upon an average, forty voyages a year. Now, what is a ton worth? We have seen a lake ton estimated at $32. We have found $68 to be the average value, per ton, of eleven leading articles of our river commerce. Suppose the mean of these two be taken for the truth, and we thus find we have put afloat over 500 millions of dollars.

The topographical bureau at Washington, upon mere comparison with Lake commerce, and inferences from old statistics, has lately estimated the *net* value of our river commerce, at $183,609,725, which being doubled, gives $367,219,450; the author admitting that he is probably below the mark, as he undoubtedly is.

Still, in any point of view, or in any mode of expression, the commerce of our rivers is almost incomprehensibly large. Estimates made by us last summer for another occasion, deemed exaggerated and incredible at the time, we have seen no reason to change, and have therefore used them here. We adhere to the fact we have expressed, that the floating commerce of the western rivers is nearly

double the total foreign commerce of the United States, and now add further, that, the commerce of the rivers exceeds both the lake commerce and the foreign commerce added together!

[TO BE CONTINUED.]

NOTE.—We have received an anonymous but polite hint relative to our orthography of "Wiskonsan," our correspondent reminding us of the *Wisconsin* generally in use and the French Ouisconsin of former days. Gov. Doty is our authority for stating *Wiskonsan* to be the correct Indian orthography, and it certainly seems more Indian like, with the accent on the last syllable.

ART. III.—THE LIFE OF JOHN RANDOLPH.

THIS is the title of a forthcoming work from the pen of HUGH A. GARLAND, Esq., who has politely permitted us to transfer the following chapter to our Journal.

The written life of a prominent statesman properly embraces the political history of the age in which he lived; and there is, perhaps, no period in American history fraught with so much instruction in regard to the true nature of our institutions, as that in which the subject of this memoir acted a conspicuous part. This was the period in which the first practical application of the theory of a republican form of government, based upon the universal suffrage of its constituents, was first made by any considerable portion of the human family; and hence, it will be regarded in all time to come, as the most interesting in the annals of history. Revolutions are common events, and have served to swell the volume of history from the first dawn of civilization; but the establishment of a government upon principles of equal rights and equal privileges, was reserved as the great moral achievement of the American people, subsequent to their revolution.

The reader will perceive, from the chapter before us, that the author is preparing the way for a comprehensive view of his subject. In doing this, it was natural that he should introduce the leaders of the two great parties; and we have selected this chapter as affording a test of the impartial manner in which he treats his subject. Impartiality may be regarded as the highest quality of the historian and biographer, and he who can, at the present day, do equal justice to the character of HAMILTON and JEFFERSON is entitled to more than ordinary commendation. Let the friends of each judge for themselves. From the slight perusal that we have given the manuscript, we conclude that it is destined to take its place among the standard works of the country.

JEFFERSON AND HAMILTON.

In the winter of the year 1790–1, Philadelphia had again become, as in times of the old Continental Congress, the great centre of attraction. By a recent act it had been made the seat of the Federal Government for *ten* years. The

National Legislature, adjourning the 12th of August in New York, were to assemble the 1st Monday in December, in the new capitol. The papers and offices of all the executive departments were removed thither early in October, under the conduct of Col. Hamilton, the Secretary of the Treasury. The President, returning from Mount Vernon in December, took up his lodgings in a house belonging to Robert Morris, which had been hired and fitted up for the purpose. And Tuesday, the 7th of December, the third session of the first Congress was organized in the new Court House of the city, which had been tendered to the government by the town authorities. We find also, our young friend, in this general removal, transferred to the city of Philadelphia. He took up his residence at No. 154 Arch street, where he continued with short intervals, till the spring of 1794, when he returned to Virginia.

He was attached to the family of Edmund Randolph, the Attorney General of United States—the same person his mother pointed him to as the model of an orator, worthy of his imitation. Edmund Randolph was a kinsman in the collateral line. He was the son of John Randolph, the King's Attorney General, about the time of the Revolution.

"Mr. Randolph," says Wirt, "was, in person and manners, among the most elegant gentlemen in the colony, and in his profession, one of the most splendid ornaments of the bar." He was the son of Sir John (Knight,) who was the son of William, of Turkey Island, the great American progenitor of the family.

Edmund Randolph inherited many of the accomplishments of his father; but he was more showy than solid. He was also of a vascillating character—voting against the constitution—then violent in its favor. Striving at first to steer above the influence of party, he was at length engulphed and swept away by its current. We may, therefore, suppose that his influence over the mind and character of his pupil was not so great as that of another kinsman, who was also a member of General Washington's Cabinet. We allude to Thomas Jefferson, the first cousin of John Randolph's father, and the intimate friend of his youth.

Mr. Jefferson had been abroad some years as Minister to France. Returning on a visit to America, he was invited by Gen. Washington to take charge of the State Department. The invitation was accepted, and he was no sooner installed in office in the spring of 1790, than he became the head and leader of the Republican States' Right party, then struggling into existence. It was not the exalted station alone, but other circumstances that forced him into this unenviable and critical position. The author of the doctrine of State Rights, and its eloquent defender—George Mason and Patrick Henry—were both in retirement. The latter had been offered a seat in the Senate at its organization, but declined. It was tendered to him a second time, on the death of Col. Grayson; he again declined on the ground that he was *too old to fall into those awkward imitations which have now become fashionable*—spoken in allusion to the levees of Mrs. Washington, and the etiquette observed in presentation at the executive mansion.

Richard Henry Lee was still in the Senate. He was the gentleman, the scholar and the orator—but his thoughts ran too much in the smooth channel of established forms—his oratory too elaborate and polished—his disposition too indolent and unambitious, to make him the fit leader of a party just coming into existence in a new era, with new thoughts, new principles, and an untried experiment before them. Thomas Jefferson was the man. The qualities of his mind, his education, and previous course of life fitted him to be the bold and intrepid pioneer of that untried course the people had entered upon.

His mind, not of the Platonic cast, was eminently perceptive. The abstract had no charms for him—the spiritual no existence. Devoted to the natural sciences—his Metaphysics savored of Materialism. Locke's Philosophy of the Senses bounded his conceptions of the human understanding. And the French Disciples, who pursued the doctrines of their master, to the legitimate consequence of sensualism and infidelity, were his chief authorities on all questions of morality and religion.

He was a bold, free-thinker, bound to no school. "I never submitted the whole system of my opinions," says he, "to the creed of any party of men whatever, in religion, in philosophy, in politics, or in any thing else."

He was born in a country, in the vigor of its youth, untrammelled by habit, and new in all its social relations. He was a child of the Revolution. His ardent temper was kindled by its stormy passions—and his bold intellect grasped the master idea of that great popular movement, which was unfettered freedom to mind, body and estate. By him the law of primogeniture was destroyed in Virginia—religious freedom established—and universal liberty and equality proclaimed in the Declaration of Independence.

His ruling desire to strike the padlock from the mind, and the fetter from the limbs of mankind, was rather strengthened than abated by his long residence abroad under a despotic government. Being a man of letters and of taste, he was in intimate association with the great writers and master spirits that set the ball of the French Revolution in motion. In boldness and freedom of discussion they surpassed even himself. Speaking of them he says, "the writers of this country (France) now taking the field freely, and unrestrained, or rather revolted by prejudice, will rouse us all from the errors in which we have been hitherto rocked."

A witness of the assembling of the States General, May, 1789, he rejoiced in the downfall of the worn out French monarchy, of which that was the signal; and was the friend and adviser of those who sought to rebuild on its ruins a freer government with broader and deeper foundations. He heard the rights of man, the origin of government, the abuses and limitations of power, more freely discussed in the cafes and saloons of Paris, than in the court yards of Virginia.

When the usages and precedents of past times and other governments were scornfully rejected, he saw our own proceedings pointed to as a model and regarded with an authority like that of the Bible—*open to explanation, but not to question.*

Coming from those scenes of enthusiasm in which he so warmly participated—coming from a land where old prejudices and long established abuses were vanishing away—where the titles of Feudalism, and the privileges of Despotism had been swept away in a night, and a great nation were rejoicing in the dawn of a new era of freedom—he expressed himself astonished to find his own government, which was regarded by others as a model and an example, possessed with a spirit that seemed to him so anti-republican.

This false direction of the government he mainly attributed to the financial schemes of Alexander Hamilton, Secretary of the Treasury.

It is well known, that Hamilton advised a Constitution far different from the one adopted. His was a plan of consolidation, with a strong infusion of the Aristocratic principle. Having experienced the imbecility of the Confederation, he did not believe the new government practicable. Without a successful example in history, he did not believe in the capacity of the people for self-government. Judging of mankind by the oppressed and degraded specimens of the army and of the old country he did not duly appreciate the intelligent and manly character of his own countrymen; nor did he comprehend the nature of that government of specified powers and divided sovereignty which was the embodiment of their spirit and principles. Placed at the head of the financial department of a new government, he was surrounded with many difficulties. The war had left the Confederation and the States burdened with debt and exhausted of resources. It became his duty to devise means to resuscitate the one and to pay off the other: with no experience in his own country, it was natural he should look to the successful example of others. He is considered a wise statesman, who is guided by established precedents, does not strike into unknown paths, but prudently follows the course that has been pursued before him. Judging him by this rule it would be hard to say how far he ought to have acted otherwise than he did, without hazarding the censure of rashness. "The chief outlines of these plans," says he in his report on public credit, "are not original, but it is no ill recommendation that they have been tried with success. He recommended that the debts which had been contracted by the several States in the War of Independence, and for which they were bound as independent sovereignties, should be assumed by the new government—that these assumed debts and those contracted by the Confederation, amounting in all to some eighty millions of dollars, though greatly depreciated and passed from the hands of the orignal owner—should be funded at their par value—the interest to be paid regularly by an excise and an impost duty—but the capital to be viewed in the light of an annuity at the rate of six per cent. per annum, redeemable at the pleasure of the government. He also advised the incorporation of a National Bank, as "an institution of primary importance to the prosperous administration of the finances, and of the greatest utility in the operations connected with the support of the public credit." In his reports he labors, at great length, to prove the utility of a well funded National Debt; "it is a well

known fact," says he "that in countries where the national debt is properly funded, it answers most of the purposes of money. Transfers of stock or public debt are there equivalent to payments in specie; or in other words, stock in the principal transactions of business passes current as specie. Trade is extended by it, because there is a larger capital to carry it on. Agriculture and manufactures are promoted by it for a like reason. The interest of money will be lowered by it, for this is always in ratio to the quantity of money, and to the quickness of circulation. From the combination of these effects, additional aids will be furnished to labor, to industry and to arts of every kind. But these good effects of a public debt are only to be looked for, when by being well funded, it has acquired an adequate and stable value." These arguments viewed in connection with the obvious tendency of his policy, led the enemies of Hamilton to declare, that he regarded a National Debt as a national blessing, Though this inference might be drawn from his doctrine and policy, he yet, in express terms, declared himself against it. "Persuaded as the Secretary is," says he, "that the proper funding of the present debt will render it a national blessing, yet he is so far from acceding to the proposition, in the latitude in which it is sometimes laid down, that 'public debts are public benefits;' a position inviting to prodigality, and liable to dangerous abuse, that he ardently wishes to see it incorporated, as a fundamental maxim, in the system of public credit of the United States, that the creation of debt should always be accompanied with the means of extinguishment." Had those schemes of Hamilton been laid before a British Parliament, they would have been viewed as clearly and ably expressed, and adopted as practicable and expedient; but with us, far other and higher considerations than those of expediency or practicability had to be weighed before the adoption of any measure. The British Parliament was omnipotent; the American Congress limited to a few, well defined, and specified powers. Parliament was only guided by precedent and usage—Congress was controlled by the words of a written Constitution. There was with us, therefore, a primary and fundamental enquiry to be made on all subjects of legislation, unknown to the British statesman. Whenever a measure is proposed, the first question should be—Is it constitutional? Is it authorized by the specified powers laid down in the charter? or does it encroach on the reserved rights of the States? How does it affect the balance of power between the Executive, Legislative and Judiciary Departments, or how does it operate on the morals and integrity of the people, upon whose purity depends the existence of a free government? Unless these preliminary questions are always honestly and fairly settled, it is obvious that a Republic and a written Constitution cannot long be of any avail. But these considerations did not occur to the mind of Hamilton, in projecting his schemes of finance; they are never started, nor is the slightest allusion made to them in his reports. He views every subject in its financial aspect, without regard to its political bearing on the new, peculiar, and delicately balanced institutions of his country. This was his great and fatal error: Thomas Jefferson perceived it and

battled against all his schemes as unconstitutional, destructive to the independence of the States, and corrupting to the rulers and to the people.

Posterity, therefore, in pronouncing judgment on these great rivals would be constrained to say that Hamilton was the able financier, but Jefferson the profound statesman. While the one with averted countenance looked back upon the lights the world had already *passed*, the other with prophetic vision caught the rays of a new constellation, just dawning upon it. Gathering up in his capacious mind the tendency and influences of those feelings, and opinions recently developed in American history and institutions, Jefferson conceived a theory of government that embodied the growing sentiments of the people and fulfilled their idea of what a free Republic should be. He stands in relation to the Constitution as Aristotle to the Iliad, Homer wrote the poem, the philosopher deduced thence the rules of poetry. Mason and other sages made the Constitution, the statesman abstracted from it the doctrines of a federative representative republican government, and demonstrated that they alone are adapted to a wide-spread and diversified country, and suited to the genius of a free and enlightened people. Were the question asked, What has America done for the melioration of mankind, the answer would not be found in her discoveries in science or improvements in art, but in her political philosophy as conceived by Jefferson and developed by his disciples. Though he was the acknowledged leader of what may be called the great American movement, he never spoke in public, and never wrote an essay for the newspapers. His great skill lay in infusing his sentiments into the minds of others by conversation or correspondence and making them the instruments of their propagation. Gathering about him the influential men of the new party, he imparted to them more comprehensive views of their own doctrines, and made them the enthusiastic defenders of those principles, the importance of which they had but dimly perceived. Over no one did he exert a greater influence than the young and ardent subject of this memoir. His connection with the family of Edmund Randolph and his near relationship to Mr. Jefferson himself, brought him frequently within the sphere of that fascinating conversation which was never spared in the propagation of his opinions. But, John Randolph, although a youth, was not the character to yield a blind allegiance to any leader. The disciple differed widely in many doctrines from the master. The grounds of that difference may be found in the writings of another great statesman that begun about that time to take hold on his mind and deeply impress his character. So great was their influence in after life that the writings of Edmund Burke became the key to the political opinions of John Randolph. With him Edmund Burke was the great master of political philosophy.

ART. III—MENTAL CULTURE.

"What is man,
If his chief good and market of his time
Be but to sleep and feed? A beast, no more!"—SHAKSPEARE.

MERE animal gratifications are, in truth, as my epigraph implies, the chief good of our uncultivated nature. Man has been endowed by his Creator with faculties of a high order, capable of affording him the most refined and exquisite enjoyments, but the condition on which they thus administer to his happiness is that of use and exercise upon objects that are worthy.

Without their appropriate culture, indeed, or when misdirected to low and unworthy purposes, those faculties, otherwise so enobling, will become but a snare to their possessor, and may prove rather a curse to him than a blessing; and he who keeps them altogether unemployed, may be said, in the homely but expressive language of the poet, to be "a beast, and no more."

Cultivation of mind is the boast of every civilized people; it is the means by which civilization has been achieved, and the only means by which it can be maintained or farther advanced; the two terms are in fact convertible, and we may fairly estimate the degree of civilization to which a people has attained, by the extent to which they are known to cultivate the higher faculties.

This is equally the condition and the test of their advancement, primary and essential, and which, if neglected by any people, whatever intellectual superiority they may have previously won, they will again by such neglect, gradually lapse into barbarianism. Nothing remains stationary, nor can man, in any of his characteristics, resist change if he would. If we advance not we must retrograde; and this is alike true of our physical, our intellectual, and our moral natures. Our mental states are different now from what they were a year, a month, a week ago. We are ever acquiring new ideas.

Our views of men and things are not to-day precisely what they were yesterday; and as with our intellectual so it is also with our moral characteristics; our morals improve or they deteriorate. If, as we live on, we become not better we inevitably grow worse. Change, decay, and renovation is the established order of nature from which there is no escape. Our entire being is in perfect harmony with this state of things, and man is so constituted as to be dependent for his well being upon intellectual and moral advancement; and it is equally true that if we advance at all it must be by increased cultivation.

Let the many become distinguished by the same ardor for mental acquirements, and be in possession—if this be possible—of the same mental attributes which already characterize the select few who earnestly and sedulously cultivate their faculties, and we shall reach a state of civilization and social happiness to which mankind have never yet in any part of the civilized world at all approached. It is to be feared, however, that we are yet very distant from a consummation so

desirable; great and important changes—in the minds of the people, at least—remain to be effected before such a condition of society as here alluded to, can be brought about or attempted with any hopes of success.

It is not certainly by any genius of the hand in the arrangement and disposition of *matter*, by the discovery of new principles of science or a novel application of those already known—not by the promotion of our physical comforts and conveniences, however desirable, that we can expect to attain to our 'chief good' and find the best 'market of our time.'

Nor, much as depends upon the nature of our political institutions, can we reasonably expect by any skilful modeling of these, or other political changes, to accomplish our end, and find in them alone the means for attaining to our greatest happiness. To a highly cultivated people these things are of less consequence, and mere forms even of government, will signify but little when the masses become sufficiently intelligent.

Whatever the form which a people may be fated to live under, freedom, good institutions, wise laws and regulated liberty will prevail in proportion as they become thus distinguished. Intelligence constitutes the only real power, and with enough of this the masses will always direct the operations of government aright in whatever circumstances they may be placed. Universal experience has sufficiently established the fact that whatever may be our physical well being, or our possessions in other respects, the mind—the intellect—is not to be satisfied except with something intellectual, but unfortunataly for our happiness, we are constantly looking beyond the mind for what is to be found only within in.

We esteem ourselves as being a people among the most civilized of the earth, and, in many respects, this is not to be questioned. Various ideas are, however, attached to the term civilization, and it is differently defined according to the aspect in which the thing itself is regarded by different individuals. We have freed ourselves from many restraints which still continue to impede the advancement of others; but whether we may not have imposed upon ourselves others of a different nature, and more hopelessly binding, would, perhaps, be no ufitting subject of enquiry. Mind is active among us, and we can boast a large share of inventive genius; we are discriminative and persevering withal, but whether we are making any real progress in that better civilization which regards the heart as well as the head, refining the feelings while it improves the intellect, may justly, in my estimation, be questioned.

Our minds are too exclusively engrossed with pursuits of a worldly nature; and whatever sentiments we may entertain favorable to a higher species of culture than that which we generally engage in, they appear to influence our conduct but slightly in active life: practically, we repose our chief good in material enjoyments.

The objects of industry upon which talents and genius are employed, are too exclusively material—to alter matter and not to alter the state of mind. It must be confessed too, with whatever reluctance, that here, in the expansive West,

where the present population is but the germ from which is to be unfolded a mighty empire, and fated, therefore, to influence the destiny of unborn millions by what may be its present characteristics, intellectual and moral, there is notoriously a great want of cultivation in almost every community.

The means for remedying this defect are sufficiently abundant, and the facilities numerous, yet we avail ourselves but little of the circumstances; cultivation is indeed hardly any where among us sufficiently appreciated by young or old, and purely intellectual pursuits are held in but little general estimation: nay, is it not too often the case that the individual who lives in seclusion and devotes his time or his leisure to pursuits of such a nature, instead of receiving our sympathies, experiences more of our contempt than our countenance and encouragement? While this continues so to be, what else can be predicated of us than this, that we are a people given up to materialism, and who follow after strange gods; that we worship Mammon, or sell our birth-right for a mess of pottage? For in the absence of cultivation and all appreciation of it, our supreme felicity is still to "feed and sleep," to buy and sell, and get gain by driving hard bargains.

But whether this be a true representation of the condition of mind and thought as existing among us, or otherwise, and even should we be persuaded that we are advancing in that path in which it is most desirable we should direct our steps, let us not be unmindful that our present State, boastful as we may justly be of it, when comparing it with the past, or with that of many others, is but one of progress; that we are but yet in a stage that is intermediate, and very far removed from the goal we should aim at—that ultimate state of civilization and condition of social life in which the well being and happiness of mankind may be expected to be increased a hundred fold.

We conceive ourselves to be happier in a civilized than we should be in a savage condition, and with justice. The chief if not only characteristic of civilization, and that which distinguishes it from barbarism, is cultivation of mind.

It is to his greater mental endowments that man owes his superiority over the rest of the creation; by them he is enabled to subdue brute force however formidable, to exert a control over the circumstances around him, and obtain dominion over the material universe. By cultivation he is diverted from pursuits of a low and grovelling nature which lead to no substantial enjoyments, and enabled to appreciate those higher and more refined pleasures which a cultivated intellect can alone experience, and which raise man in the scale of being and of happiness so far above, not only the mere animal creation, but above all others of his species who permit their minds to lie fallow, or to be engrosssd only with low and sordid interests. The mind that has never been awakened so far as to be smitten with the love of knowledge, makes no inquiries, and sees nothing in its acquisition but a dull and tiresome labor; its unfortunate possessor meets with nothing to excite his wonder and admiration, but gazes with stupid apathy on all the beauties and grandeur of the universe.

To the mind not habituated to study, thinking is an arduous task; some discipline is necessary and some efforts required to be made by every one before intellectual pursuits can be in any degree appreciated as a means leading to improvement and happiness. Mind is the medium of all the knowledge that can be acquired. It is by the exercise of thought that every operation, mechanical, agricultural, &c., as well as every professional or other pursuit, is carried on and perfected; and in proportion as the mind is informed and invigorated, will excellence and eminence be attained in every walk of life.

In whatever way we may be engaged, whether in the acquisition of wealth or power, or in "seeking the bubble reputation," or, whether we be merely endeavoring by our physical energies to prolong existence by catering for the necessaries of life—mind is all that is truly concerned: we are contemplating something which we believe will administer to our happiness, or avert from us dreaded evil. It is surely worth our while then to devote some portion of time and to bestow some care upon our minds in the endeavor to improve them.

Unless indeed we do this—extend our ideas and treasure up thoughts for future use—every acquisition we can otherwise make, however considerable, will be vain and profitless when regarded as a permanent good. But we suffer our thoughts to be too much engrossed with material objects, and, unfortunately, when this is the case, and the attention becomes exclusively occupied with the properties and interests of external things, the effect is to render the mind in our imagination, subordinate to the objects upon which it is directed; the faculties are nothing—the objects every thing.

It will be well for us, therefore, sometimes to turn our thoughts inwardly, and make ourselves acquainted with the properties of mind as well as of matter, for a knowledge of the instrument with which we operate will certainly enable us to use it to greater advantage. I know of no study, indeed, which in an equal degree enlarges the ideas, or which calls up so great an amount of thought as that of mental science. It is therefore a fitting subject to employ as a means for obtaining mental culture.

But these observations are somewhat aside from my present purpose, since it is not my object to write a dissertation on mind itself, its nature and constitution, but to insist upon the importance and necessity of *using* it, or of directly cultivating the faculties so as to develop their full powers.

In pursuing my subject then, it may not be altogether futile to inquire what is to be understood by *cultivation;* for when we come to know what are the precise ideas we should attach to the term, we shall more advantageously prosecute what is implied by it, and be enabled the better to secure its benefits. To do this, and to point out by what means cultivation could be most effectually obtained has been a part of my aim and object from the outset.

The subject is a familiar, if not a hackneyed one, and the task of illustrating it would seem to be sufficiently simple and easy of accomplishment.

It is a theme often urged upon the young by those of matured life, but its benefits may be appropriately recommended to the consideration of this latter class also, who may prosecute it with equal or superior advantage, as being less volatile and possessing reasoning powers more developed. Mental culture, however, when it becomes the subject of notice, is mostly descanted upon in terms that are too general for forcibly impressing its benefits upon the minds of those who are unacquainted with them, or who need incitements to engage in the task. Any analysis of it is rarely undertaken by those who are in the habit of urging its importance, and it is questionable whether the great majority of those addressed, and who think at all on the subject, have any exact ideas as to what cultivation really is and how it is best to be obtained.

I propose, on this occasion, therefore, to attempt this analysis, and to explain and illustrate the subject in as plain and familiar a manner as I can by instances and exemplifications.

The shortest definition which I can give of the term cultivation, is this—it is the exercise of the faculties of the mind upon a great variety of subjects, in such a manner as to develop their powers to an extent far beyond what they would be capable of exerting without having had the benefit of such exercise, or, if they had been employed upon one or two subjects only; for they grow and enlarge by use, and without use or exercise, they can scarcely be said to be any thing, or if any thing, their condition would be analagous to that in which we may suppose the limbs of the body, were the latter to be altogether unused; they would be incapable almost, of an effort, or in any way of exercising their functions.

But this exercise of the faculties does not necessarily imply the cultivation of letters, or indeed any acquaintance with them, for the minds of men may and do get a large amount of culture without the direct aid of literature; while on the other hand, it is quite possible that a man may have made no inconsiderable advances in mere literary acquirements, and yet have obtained from them but a slender amount of cultivation.

Learning is not always knowledge, nor will mere reading without reflection and the due exercise of the understanding, cultivate the intellect so as in any considerable degree to give it acuteness or increase its powers of discrimination. Without the use of the reflective faculty in reading, "the knowledge obtained from books," as elsewhere observed, "may rest upon the memory as it came there, when for any practical purpose it might as well have remained on the shelves with the books, to be taken down as occasion might demand.

"There are many *book worms* who devour words but never touch an idea;" there is too often much learning with but little real knowledge. Knowledge, to be of practical value, must be elaborated through the thoughts by reflection, until it becomes a part of our ordinary associations, for not until then will it be truly our own. It has been well observed that, "although we may be learned by the help of others, we can never be wise but by our own wisdom." The best part

of a man's education is that which proceeds from himself; nor is it a something to be finished at a certain age; in the best sense of the term, a man's education, and his life should only terminate together.

The form and fashion of our minds, if they are to be such as most desirable, must be the work of self-discipline. "In all circumstances," says Daniel Webster, "as a man is under God, the master of his own fortune, so is he the master of his own mind. His Creator has so constituted the human intellect that it can grow only by its own action, and by its own action it most certainly and necessarily grows. Every man must therefore, in an important sense, educate himself. His books and teachers are but helps—the work is his.

"The greatest of all the warriors that went to the siege of Troy, had not the pre-eminence because nature had given him strength, and he carried the longest bow, but because self-discipline had taught him how to bend it."

But let me be rightly understood—I have said that letters are not a necessary means of culture, and that a man may cultivate his intellect without their aid; I wish not to detract in the slightest degree from the importance of literature, but acknowledge how immeasurably great is our indebtedness to it as an auxiliary,—what I mean to assert is, that a certain, and that no inconsiderable degree of cultivation, can be attained to without the use of letters: they were the result and not the cause and origin of civilization in the first instance.

But in the present age they afford, if rightly used, the readiest and most effectual means of cultivation, and the mind of any man, whatever other means he might resort to, or however sedulously he might employ his thinking faculties, would, without their aid, if estimated by the modern standard, be but very partially and imperfectly cultivated. They have become indispensable to any further advancement.

Mankind first arrived at a certain stage of civilization by other means; they had made discoveries, invented arts, and accumulated knowledge, long anterior to the literary period; but destitute of the art of recording that knowledge, except in the repository of their own minds, and still more of widely diffusing it—for it was unavoidably confined to a small class—their progress was necessarily limited. It was not until the invention of letters, and subsequently of the printing press, that they obtained the means of a sure and indefinite advancement.

Let us now consider in what way and by what means man obtained cultivation and consequent civilization in those periods of the world that were anterior to the invention of letters, for undoubtedly some considerable progress had been made by the people of different nations long before the commencement of the literary era. By so doing the readers of the Journal will be the better able to comprehend my meaning and the ideas I would attach to the term cultivation.

The wants of mankind increased as they themselves increased in numbers, and as their faculties became excited by the necessities of their situation.

Their wants taxed their invention, and gave rise to what we call the common

arts of life. Agriculture and the mechanic arts, but especially the latter taught them to use their faculties and exert their ingenuity. In the pursuit of these arts they had to resort to contrivances, and to consider the adaptation of means to an end. In this way, and stimulated, as I have said, by their necessities, they were compelled to think and reason—to devise plans, to make experiments, to advise and discuss with one another the fitness and expedience of their plans; they had, in short, to learn without the aid of teachers: and this is cultivation, and is that in fact which comprises the essence of all that we effect, but so much more extensively, by modern education—by teaching letters and thus imparting knowledge of every kind which letters have so much accumulated by their instrumentality in preserving and transmitting it from mind to mind. We effect this or we effect nothing; for if by teaching literature and science we do not arouse the faculties into activity, and consequently stimulate the individual to think and reason, what has been learned, if any thing, has only been learned mechanically and by rote as a parrot learns to talk; the memory and not the understanding has been exercised.

I will pursue this train of thought and reasoning a little further, and illustrate the subject by citing my readers to the power which different professions and occupations in life have of developing mind. The lawyer or the physician who has duly studied his profession, has thereby not merely qualified himself for discharging the duties of such profession, but he has gained also many indirect advantages in the greater comprehensiveness of thought which is the necessary result of the exercise of his reasoning faculties, while he was engaged in acquiring his professional knowledge. He has gained that power over the minds of his fellow men which knowledge or cultivated intellect never fails to confer in proportion to the extent of such knowledge or cultivation, and which he would certainly not have been in possession of if he had not in this or some other way exercised his understanding. In like manner the mechanic, in proportion to the demands which the nature of his art makes upon his thinking powers, will have his mind improved and developed during the time he is engaged in acquiring, and subsequently in exercising his profession. In confirmation of these propositions, I will now institute a comparison between men of different pursuits in life, regarding them in classes according to their different occupations.

The ordinary day laborer who is just taught mechanically to direct his work to a profitable issue, is, in general, the least distinguished for discriminating thought and reflection; he is constantly exposed to the danger of being deceived, because never exercised in the practice of close investigation, or in tracing effects to their causes.

There will generally be found less intelligence or discrimination among those mechanics whose occupations may be denominated *crafts*, than such as are engaged in employments where there is a direct and immediate requisition for scientific information, however inconsiderable. Machinists, mill-wrights, house and ship carpenters, and men of all those professions wherein scientific calculations

are indispensable, will generally be found to possess a soundness of reasoning, and an acuteness of discernment by no means common to artizans whose intellects have not been so exercised. And they will evince this superiority in what relates to general subjects, unconnected with their particular occupations, even when in possession of no other knowledge of the theories of their respective professions, than such as they have acquired from their experience in the practical operations. The mental labor which men so employed are under the continual necessity of exerting, eminently conduces to the making them rational beings. They are accustomed to closeness of deduction, and therefore will not readily become the dupes of error, or be easily imposed upon by ignorance and prejudice. And thus, all those who are concerned in arts to which geometry, mathematical science in general, and chemistry, are directly essential, derive advantages indirectly from these sciences, which, in all that relates to intellectual action, are equally as important as any direct advantages which they can confer.

[TO BE CONTINUED.]

ART. V—ON THE ECONOMICAL GEOLOGY OF THE STATE OF MISSOURI.

NATURE supplies every want essential to the existence of man, but without the arts of civilization the abundance of her resources are only adequate to the support of a limited number of the race.

Impelled by a principle of his nature to multiply and replenish the earth, he was endowed with faculties which enable him to discover, to modify and develop the latent but inexhaustible stores of provision which a benevolent Creator provided for the happiness and support of a destined increase in number. Endowed with a moral nature, the source of social action, his desires and susceptibilities of enjoyment increase in proportion to his acquisition of knowledge. But without the employment of his physical energies and rational powers in the active pursuits of labor, his mental faculties would be useless, his desires vain, and his susceptibilities of enjoyment only continual sources of wretchedness and misery.

The decree which went forth against him at the fall, though it may have been a curse in certain conditions, yet under existing relations may be regarded as the greatest of blessings. A child of earth, he borrows the material elements of his existence from the dust which he treads beneath his feet, and in some measure the elements of his intellectual and moral nature from objects and influences derived from the same source.

Nature furnishes the objects on which his physical and intellectual powers are to be exercised, to the end that they may receive their full development. But in the pride of his heart he looses sight of the humbleness of his origin, his dependence on matter, and scarcely appreciates the high and noble privilege of not only

increasing the means of subsistence, but of improving his facilities of physical and moral enjoyment, "by the sweat of his face." Were he exempt from labor the energies of his body would not only become enfeebled, but those of his mind would remain undeveloped. Indolence would cause the one to lose its healthful vigor, and the other to fall into lethetude for the want of wholesome excitement; were he dependent on the spontaneous productions of the earth alone, he would become a mere microcosm of sensuality, a breathing automaton, without energy of purpose, fertility of invention or skill or forecast in the conduct of life, and his condition would conform to the poetic idea of "a waveless calm a slumber of the dead."

Obedience to the Divine injunction, and the great objects to be attained by labor render it not only honorable, but impress on it a dignity which cannot be effaced by the sickly sentimentality of those who are endeavoring to escape from what they improperly deem a curse.

There is a wisdom in this provision which, it seems to us, is not sufficiently appreciated. It is admitted that it is essentially necessary to happiness to occupy the mind. But to occupy it in the graver and more serious employments of life, or those which are calculated to be useful or beneficial to society, secures more real enjoyment than the vain and frivolous pursuits of the idle and the luxurious, who endeavor to fill up the measure of time allotted to them here, by a continual round of trivial amusements. Yet, with an exhibition of these great truths constantly before us, proving as they do the moral government under which we are placed, we all seem to be struggling to avoid that which can alone render us happy; and hence we require high and powerful motives to action to prevent us from falling into the enticing, but enervating and destructive indulgences of indolence.

Fortunately for us, we live in an age in which new incentives to exertion may be found in tracing back the history of the past, and calling to recollection the brilliant achievements of human art and industry, in modifying and improving the spontaneous resources of nature.

The more docile of the wild animals which once roamed the forests in unrestrained liberty, have been subdued, protected, multiplied, and trained to supply the increasing wants of mankind. The fruit-bearing trees, the grain-growing cereals and other useful plants, modified and improved by culture, have enhanced to a wonderful extent the means of sustaining human life, while the ever varying charms and elegancies of the floral world have contributed to invest it with their poesy.

Man has borrowed from the quadruped, from the insect, the down of the seed and the woody fibre of certain plants the raiment with which he is clothed.

The dust of the earth has been moulded and fashioned, and mansions graced with architectural splendors have taken the place of the gloomy cavern and the humble lodge.

The rocks have been hewn and polished and noble structures and proud monuments rise to perpetuate the glory and renown of time-honored events in the history of the race.

The ores and metals have been fused and wrought into implements of industry wherewith the agriculturist, the manufacturer, the artizan and the laborer have been enabled to supply not only the more essential wants of life, but also its luxuries; and the precious metals, furnishing a medium of circulation, have given an impulse to trade, to commerce, and to international intercourse, which has hastened onward the advance of social progress.

The employment of coal in the production of steam, has changed the whole aspect of society. The steam engine has worked its necromancy and its wonders so long among us that it scarcely now excites our surprize in the extent and variety of the labor-saving offices which it performs. It is the great lever which moves the manufacturing world, and its iron pathways form the bonds which associate and bind together nations the most distant and varied in habits and pursuits.

The electricity which gives swiftness to the lightning's flash, has not only been *bottled up*, but made to transmit intelligence from one portion of the globe to another with the rapidity of thought, by which it almost confers *ubiquity* on man.

The ray of light drawn from the sunbeam has not only been divided into its prismatic colors, but has been made to sketch the varied imagery of the landscape and has but scarcely failed to imbue it with the living hues of a perpetual spring.

All this has been accomplished by physical labor under the direction of the higher powers of the intellect; and yet man has taken only a few initial steps in the long and brilliant stages of civilization and refinement which must characterize his progress to his ultimate destiny. Although many of the agencies of nature have been brought in requisition in meliorating and advancing his tendency to social progress, yet he has not found the *ultima Thule* of his aspirations, where he can stand still and fold his hands in idleness and self-complacency and say that I have no other conquests to achieve.

We have been incidentally led into this train of reflection by observing the motto which is placed on the armorial shield of our State. A national motto should not be adopted unless it has a value and a signification as a truth which can be readily appreciated and appropriately applied. "*Salus populi est suprema lex*" is a maxim the soundness of which may be doubted under given circumstances. In its general application, however, it is in accordance with what may be termed the true and legitimate ends of all good government. The prosperity and happiness of a people should ever constitute the great and leading objects of every wise system of legislation. Individuals and governments differ essentially in regard to the means best calculated to secure may and do these great objects. But the errors which have obtained on the subject, it seems to us, have been, the result more of the illusions of men's prejudices and passions than of the [illegible] element, are found [illegible] ence in the northern

we find a factitious character given to our institutions and mistakes made concerning their true nature and legitimate objects, highly injurious to the best interests of society. It may be asked what have many of our State governments done to make known their own internal resources, and to show the people *where* and *how* their labor may be most usefully and profitably employed? What have they done to establish a system of common school education and to abridge the *enlarged liberty* of the people, by compelling the attendance of pupils for at least a portion of the year? And what in connecting with these institutions departments in which practical and solid instruction in the more useful arts and occupations of life may be obtained; instructions in the principles of agriculture and agricultural chemistry—of commerce and navigation—of mechanics and the mechanical arts—of metalurgy and of mining operations—of political economy and the science of government?

Have they not rather suffered the natural resources of their territories to lie concealed in their primeval obscurity—their mineral wealth unexplored—their soils unanalyzed—their prospective agricultural, manufacturing and commercial advantages and interests uninvestigated—and have they not suffered, for the want of proper educational facilities and wholesome systems of internal improvement, much of their population to remain in the blissful ignorance of a Cimerian darkness? To us, most of our State governments present the aspect of expensive controversial institutions, where laws are continually made and repealed—where the supposed "*perfection of wisdom*" sometimes establishes *rules of action* at variance with justice and equity, and even common sense—where the rights of the citizen are often hazarded by innovations and more refined principles of litigation—where new safe-guards are constantly thrown around crime which might have been withered in its growth by drying up the sources which supply it—where additional offices are created in the administration of justice and in the collection and disbursement of the public revenues—where, in fine, the government takes care of itself at the expense of its citizens, whom it is continually endeavoring to delude by professions of an interest in their prosperity and happiness which seems to have been seldom felt or inadequately appreciated.

Is it not time, then, to throw down the warder, and for all good and true men to doff the casque and plume in an unholy warfare, and meet on some common ground, where they can battle for the true principles of legislation, and the great cause of humanity?

In studying the economical geology of a country, the soil naturally claims the first consideration, as it furnishes the elements immediately necessary to human subsistence; as no analysis of the soils belonging to the different divisions of our State have been made, we shall be necessarily compelled to predicate what we have to say in regard to their constitution on their physical properties and our own observation, of the general character of the rocks which underlay them.

humble lodge. lime with sand alumine, or clay and vegetable mould,

constitutes, as is well known, a productive soil. In one region one or more of these elements may predominate to the exclusion of others, and this may occur in localities immediately contiguous to one another. Again, two soils may abound in the same elementary constituents in the same relative proportions, and one may be productive while the other is comparatively sterile, at least to the same forms of vegetation—a result which is supposed to depend on the superaddition to the one of some noxious inorganic principle which is not contained in the other. All the differences observed in the fertility of the earth, leaving climatorial influences out of consideration, may be referred mainly to these differences in the chemical constitution of the soil.

It is evident from this, that in order to know how to change a soil and give to it the greatest productive value, we must study its nature or composition, by which we learn to supply its defects, to correct its noxious properties, to diminish its excesses, and to adapt it to particular forms of vegetation. The individual and unrecorded experience of the farmer is here scarcely adequate to lead to certain results, unaided by the light which science has more recently thrown in the midst of the darkness which prevailed for so many centuries over this beautiful field of knowledge. In a country so productive as Missouri, where lands are abundant in proportion to the population, a knowledge of the principles of agricultural chemistry may be considered as comparatively useless. But it cannot be regarded in this light by those who look to the future, and do not desire to confer on their descendants habits and propensities scarcely less congenial to social progress than those which characterize the nomadic life of the Caucassian Kalmuk. The fertile lands of our State should not be plundered because they exist in greater abundances than the demands of the present generation seem to require. Neither should they be exhausted because an application of the principles of agricultural chemistry may at some future day redeem them from a sterile condition. The admonitions of sober wisdom would seem rather to enjoin that their productive powers should be husbanded, their latent qualities developed, and their capabilities of sustaining a varied vegetation gradually unfolded.

The soils of all that portions of the State of Missouri north of the Missouri river may be classed in a general manner as belonging to the calcareous and arenaceous groups, the aluminous or those in which clay predominates being seldom found, except of limited extent. The calcareous or those abounding in a large proportion of lime, predominate throughout this region, and furnish immense tracts of fertile and arable land, particularly near the water courses. Of this division of the State, the lands forming its western border along the Missouri river, abound more in calcareous elements than its middle or eastern portion [illegible] uctiveness of Clay, Platte and Buchanan counties is equal to [illegible] ly [illegible] tent of country on the globe—while many of the inter[illegible] the Miss[illegible] issippi [illegible] e little inferior in fertility. The soils in whi[illegible] element, are found on the southern flank of [illegible] ence in the northern

portion of this district and extend to the head waters of the Mississippi river. Here we often find the cold and barren soils of prairie land mingled with the arenaceous deposits of drift which seems to have been swept from the north-east over the surface of this region.

The lands lying immediately below the Missouri river, forming the narrow belt which we have characterized as a prolongation of the Illinois coal-field, presents us with alternations of calcareous and sandy soils. But the silicious materials are here found to result from the disintegration of the sandstones which belong to the coal-bearing strata of the carboniferous group of rocks. These sandstones where they come to the surface alone, impart more or less sterility to the country; but when mingled with a due proportion of lime, resulting from the decomposition of the accompanying limestones, give rise to a productive soil—for many of these limestones abound so much in alumine or clay as readily to furnish this element in its due proportion.

In all countries where the carboniferous limestone underlies the surface, we have in general a soil well adapted to the cereal tribe of plants, or the grasses, including wheat, oats, barley, maize, timothy, blue grass, red top and other grasses—climate and other physical conditions at the same time being favorable. It is likewise well adapted to the production of hemp and tobacco, and in more southern latitudes of cotton and the sugar cane.

In the neighborhood of St. Louis this soil is characterized by its tendency to give out its moisture and dry with rapidity, even after the heaviest falls of rain. This peculiarity cannot be referred to the general elevation of the country above the level of the ocean. It may, perhaps, be attributed to some want of aluminous matter in its constitution, or more probably still, to the general dryness of the wind from the great sandy plains of the west.

The soils, however, differ materially in different portions of St. Louis county. That found on the hilly and undulating sections varies much in its constitution from that of the prairie which extends from a point on the Mississippi river above the residence of Col. Shreve, towards the south nearly to the river Des Peres. The first is quite arenaceous, and abounds in the salts of lime, though it is deficient in alumine and vegetable mould. So deficient is it in the last mentioned element, that strangers, generally judging alone from its physical properties, on first sight suppose it to be entirely sterile. Such, however, is found not to be the case—it evidently possesses organic matter in its constitution, though not in a form to give the dark color generally imparted by mould, as it is very productive in timothy, blue grass, Indian corn, tobacco and many other forms of vegetation. The soil of the [illegible] somewhat deficient in silicious and calcareous matters, and abounding [illegible] made, we [illegible] is stiff and tenacious as long as it is wet, but cracks much [illegible] regard to their cons[illegible] general character or dry again. This soil is well adapted to meadows, but requ[illegible] with sand and turning up before it becomes as productive as that of the [illegible]

It is evident to those acquainted with geological changes, that this prairie has more recently appeared from beneath the water than the hilly and undulating districts around it. This is evident from the aluminous and boggy nature of the soil, as well as from the occasional existence of small sloughs now nearly filled up by materials washed from the more elevated lands. It is probable that the Mississippi river, at no very remote period, partly flowed over this surface, and sand-bars forming at each connection with the river converted it into a lake. From a lake it was converted into dry land by depositions from floods, while the wearing of the main channel of the river ultimately left it elevated above the general surface of the water during the period of the highest inundations.

In the mineral region, including most of the country south of the Missouri river, the soils are formed of elements which result from the decomposition of sandstone, syenite and magnesian limestone. Those constituted of the *debris* of the syenite and magnesian limestone are eminently suited to the growth of several of our staples, but owing to the admixture of the oxyde of iron (a mineral very abundant) the fertility of some districts is very much impaired. There are some sections, such as the Bellevue Valley and the valleys of the Merrimack, the Gasconade and the Osage, which are admirably adapted to cultivation. The Merrimack from its extreme sources flows through a most lovely country, small but fertile, and blooming vallies flank even its smallest tributaries, and are hemmed in by low ranges of round backed hills, which are alike well adapted to the cultivation of the grape or to pastoral pursuits.

The more hilly, or mountainous lands, on the head waters of the White, the Eleven Points, the Current, and the Big Black rivers, present us with a thin, sharp soil, resulting from the decomposition of the semivitreous sandstone, which is, in general, unproductive, but supports some of the most magnificent pineries west of the mountains. The intervening vallies are characterized by a very productive soil, resulting from the decomposition of the syenite and magnesian limestones, but are almost too limited in extent for agricultural purposes.

We see then, that unlike most mineral countries, southern Missouri presents every requirement necessary to render it in general, a fine agricultural district. A great draw back on its agricultural advantages is the want of a convenient market. If by any means transportation could be provided for the products of the country, a new impulse would be given to industry, and a rapid development would not only take place in its agricultural, but likewise in its mineral resources.

Subsoils and Clays.—The subsoils and clays of a country general partake, more or less of the *chemical* nature of the soils which are found above them. The alumine, as an element, becomes, however, more abundant, while the silex and the salts of lime are usually much diminished [illegible] ut the difference observed to arise from this variation in the [illegible] Miss[illegible]issippi [illegible] these elements, is not the only one; a subsoil or clay [illegible] de of iron, a material imparting to it a ye[illegible] dom found [illegible] any

considerable extent in the soil itself. Again, though subsoils and clays abound in organic matter, this does not exist in the form of vegetable mould, but as colorless compounds, which cause no variation in their general appearance.

The city of St. Louis is peculiarly favored in the character of its subsoils and clays, which furnish a most beautiful building material. Owing to the great abundance of oxyde of iron and alumine in their constitution, bricks formed of them have a most lively tint of red, and exhibit a fineness of texture and a softness of aspect which we have not observed at any other town built on the surface of the great carboniferous formation of the west. In many of our western towns the bricks have a hardness and harshness of aspect, and a mottled stone-like color which is far from being agreeable to the eye.

These clays are likewise well adapted to the manufacture of pottery, furnishing, when well burnt, a most beautiful stoneware. Variegated clays of a fine quality have been found in the vicinity of St. Louis, and fine beds of fire clay accompany the coal measure a few miles west of the city.

In the mineral district Mr. Woolford has recently discovered, near Caledonia, some kaolins and pipe clays, which seem to be properly constituted for the manufacture of porcelain and earthenware. These have already been noticed in the July number of the Western Journal, and will receive a more special notice when we can find leisure to give them a regular analysis.

Similar clays are said to exist in great abundance near Cape Girardeau. The delf ware manufactured in our city from the clay obtained near Commerce, in Scott county, was of a fair quality. The discovery of these clays may be deemed of great value to the future interests of the State, when a manufacturing spirit shall receive its full development among us.

Rocks—*Limestones.*—A beautiful building material is furnished by the layers of compact carboniferous limestone on which the city of St. Louis is built; the same formation extends throughout the northern division of the State, sometimes appearing at the surface, but more generally covered over by alluvion. Some of the layers abound in a species of cyathophyllum or coral, and when polished would furnish a marble of great beauty, being of a fawn colored ground, on which these white fossils with their delicate lines of organization would be elegantly displayed. If this quarry discovered by H. L. Cobb, Esq., about ten miles southwest of St. Louis, should furnish an abundant supply of this marble, it will prove a valuable acquisition to public taste.

Some of the layers of this carboniferous limestone furnish lime of an excellent quality, and I am induced to believe that some are sufficiently alluminous to form a good hydraulic cement. This limestone becomes oolitic in the neighborhood of Ste. Genevieve, a[illegible] been used in our city as a building material. As a building stone [illegible] being in any way superior to the compact limest[illegible] If anything it is more porous and liable to scale from the [illegible]

It is much to be regretted that the State House at Jefferson City should have been built of such perishable material as is furnished by the quarries in its immediate neighborhood. This is a fine grained friable silicious limestone, which seems to be easily affected by frost, and already presents rather an unseemly appearance.

SANDSTONES.—Though sandstones are abundant in Missouri, we know of none which forms a good building material. They are in general too coarse grained and not being well cemented, are entirely too brittle. Some of those found in the mineral region would form excellent flagstones, being hard and semi-vitreous in texture, but are unseemly in appearance from the coarseness of their structure.

Near Ste. Genevieve a most beautiful white sandstone, which is exceedingly friable, is found in the greatest abundance. Experience has proved it to be well adapted to the manufacture of glass; and I am informed that the manufactories of Pittsburgh are now mostly supplied from these quarries.

PORPHYRY.—The porphyries which abound in the southern portion of Missouri must at some future day be much sought after for architectural and ornamental purposes. Some of them are of a red ground with white crystals disseminated through them, and are susceptible of receiving a high polish.

SYENITE.—None of the syenite which covers such an extensive surface in the mineral region, seems to be well adapted to building purposes—it is in general too coarse grained and loose in the adhesion of its particles. From a discovery of graphic granite made by Mr. Woolford, already referred to,* it is probable that this valuable material may be found in considerable abundance.

PRIMITIVE MARBLE, *or Saccharoidal Limestone.*—There are several varieties of primitive marble found in the vicinity of the Pilot Knob, which, if in sufficient quantity, will prove very valuable as the resources of the State become more developed. One of these is white without veins; another is of a beautiful rose color, without any variation in the uniformity of its coloring or texture, and a third which we discovered in the bottom of a creek, is of a fawn color, with white veins traversing it. It seems to form the bed of the creek for a considerable distance, and probably exists in great abundance.

SULPHATE OF LIME, *or Gypsum.*—This valuable mineral is said to exist in Jackson county, where it forms a regular layer, cropping out on the bank of the Missouri river for a considerable distance. If so, it may prove of great utility to the future agricultural interests of the State.

COAL.—Of all the mineral substances which supply the wants of civil society, none are perhaps of greater value than the bituminous formations which are reposited below the surface of the earth and destined to form the great storehouses of fuel when the forests have disappeared before the regular advances of civilization.

The Illinois coal measure extends west of the Mississippi [illegible] Louis, and is

* Western Journal, vol. I. p. 498.

probably prolonged through the entire northern division of the State, finding its southern limit in a narrow band extending along the southern bank of the Missouri river.

At Cote Sans Dessein, it assumes the form of *cannel coal*, a variety which possesses less bituminous matter and more carbon than that which is termed bituminous coal.

This may be deemed one of the most important deposits of coal in the west. From an imperfect examination made in this district in 1843, we were inclined to believe that it would be found to constitute an extensive formation. Subsequent discoveries have confirmed this opinion. It has been found at several distant and distinct points in Cole and Callaway counties, and as high as forty miles upon the Osage river. This proves that this formation is by no means very limited in its extent. Some of its layers are, perhaps, of great thickness. One on the Osage had been excavated to the depth of ten feet without penetrating through it. Another, near Cote Sans Dessein, has been, we are informed, penetrated by a shaft twenty-five feet deep with a similar result, which has induced the proprietor to infer that the stratum is here vertical in position. This may be so, as the country around this locality is much broken; but it seems to us that the question could be readily determined by observing the lines of stratification in the coal itself. Even were it, however, only three or four feet thick in its layers the extent of its distribution would render it inexhaustible for at least several centuries.

This coal, on distillation, furnishes an excellent coke, and generates gas of a fine illuminating power. On burning, it leaves but little ash, produces much flame, and being entirely destitute of sulphur, is better adapted to many manufacturing purposes than the common bituminous coal.

We feel satisfied that much of the unhealthiness of the city of St. Louis may be attributed to the inferior quality of the bituminous coal used in our grates and manufactories. It abounds much in sulphur, which on burning, assumes the form of sulphurous acid gas, while much of it is diffused in the atmosphere as sublimed sulphur. This is rendered evident by the suffocative qualities of the air during the winter season, when these agents are most abundantly diffused. The sulphurous acid, as well as the sulphuric formed by its combining with an additional proportion of oxygen in the atmosphere have a strong affinity for water, and when inhaled into the lungs combine with the watery particles which give fluidity to the mucus lining of the air tubes, and thus cause a sense of dryness and suffocation. Though much diluted by the watery vapor of the atmosphere, they act as local irritants on the pulmonary organs, and no doubt materially contribute to swe[illegible] our bills of mortality.

That free [illegible]ur abounds in our atmosphere is also very evident from the blackening [illegible] thermometer scales experience when left at rest for some time in the open [illegible] changes which take place in the Dutch silver and even

the gold leaf of our signs when not well sized—as well as from the fact that rain water caught from the eaves of our houses during even the summer months will, when left standing for some time, deposit sulphur on the sides of the vessel. The inhalation of sulphur in this form is not more injurious than that of any other matter in a state of minute division. It is no doubt expectorated or thrown out of the lungs like the fine particles of coal dust with which it is frequently associated. The coal dust imparts to the matter expectorated a black tinge, which some nervous patients have mistaken for an incipient *mortification* of the lungs.

If the cannel coal, which is free from sulphur, and which in breaking does not throw out particles in a minute state of division could be generally introduced into our houses and manufactories, we feel satisfied that it would greatly improve the healthfulness of our city.

The bituminous coal near St. Louis, is not of so good a quality as that procured from the Illinois coal mines. It abounds in much augite and shale, and is too much impregnated with sulphur in the form of iron pyrites to be used to advantage in the manufacture of the metals.

In our next number we will endeavor to present a view of the resources of the State in the ores of lead, copper, iron and other metals.

ART. VI.—THE CULTURE OF HEMP.

The value of hemp as an agricultural staple is materially lessened in this country by the frequent and great fluctuations which occur in its price, especially in districts where it is produced by hired labor.

A certain demand and steady prices for a staple raised for exportation, are essential to the prosperity of the country in which it is grown. The price of a leading staple rules the nominal value of every other kind of property, as well as of labor, and it rarely happens that the grower is a gainer in the end by prices unusually high, while disappointment and embarrassment are the almost certain consequences of a sudden decline. Moreover; high prices stimulate many individuals to enter into the business without the skill or means necessary to ensure success, and by their ill-advised enterprise, the product is enlarged beyond the measure of the demand.

This unsatisfactory condition of the hemp growers would not long continue if they were thoroughly advised of the ext[illegible] demand; for it would be an easy matter for them [illegible] any I[illegible]cy of agricultural societies or clubs, to reg[illegible] through [illegible] of cultivation according to the quantity required, [illegible]gulate the extent

It does not appear from the report of the Secretary of the Treasury that we exported any hemp of American growth in the year ending on the 30th of June, 1847, and until we find a foreign market, there will be little difficulty in ascertaining the extent of the home demand with sufficient accuracy for all useful and practical purposes. Not having the necessary facts in our possession, and desiring to obtain them for the benefit of our readers, we have continued, in every number of the Western Journal, to solicit communications upon the culture of hemp, including the details of sowing, reaping, rotting, breaking, and manufacturing—with an account of the latest improvements and discoveries in each branch, and also, the prospect of extending its uses, and of increasing the demand; and likewise, a description of the soil and location best adapted to its growth. But so little interest do the hemp growers seem to take in this matter, that we have not, until now, received a solitary fact upon the subject, except, in one instance, from a manufacturer of this city, and that was obtained by personal application. This silence on the part of growers, dealers, and consumers, has greatly discouraged us, for we had begun to apprehend that we were looked upon as soliciting information to which we had no right, and officiously meddling with the business of others. But the following communication from a highly intelligent and practical hemp grower, has relieved us, in some degree, from our misgivings; and we design to follow this communication with a series of articles upon the economy of hemp growing in the United States, in which we shall embody all the information that we can obtain upon the uses of hemp, and the extent to which these uses are likely to be decreased; and to the end that we may do justice to the subject, we again solicit those who feel an interest in the matter, to furnish us such facts as they may deem useful. We especially desire to know the quantity of hemp required to fit out a vessel of a given tonnage, including sails and cordage, specifying the quantity required for each, and also, the annual depreciation in the value of this outfit.

To the Editors of the Western Journal:

With a soil peculiarly adapted to the growth o this staple, there are many parts of the Western States that, throwing aside the cultivation of all other agricultural prod[illegible] a source of profit, might thrive and accumulate wealth to an independe[illegible] production of this indispensable article of a civilized commercial [illegible] the sole [illegible] But the idea that a farmer must produce a little of every thing and [illegible] moral people. [illegible] e a farmer—that he must grow, to some extent, every

product of the earth, that is necessary for the consumption or use of his own family or neighborhood—has, hitherto, contributed in no small degree, to keep the farming portion of the community far behind, in the acquirement of that required agricultural information so indispensably necessary, for excelling in the production of any particular staple of any country. Few bestow their leisure time or attention towards ascertaining the best or most profitable mode of growing to the greatest extent, any peculiar staple, or make it their endeavor to find out what production is best calculated for their lands or situations, and which will yield the best product, at least cost of labor or time. Such may, and probably do, know that a soil which will produce hemp, will also grow tobacco of the finest and heaviest sort, and that a soil which will bring tobacco, of the highest value, cannot grow hemp three feet high. They also know that land which will produce a tolerable good crop of corn or wheat, cannot produce tobacco profitably. This analysis might be farther extended.

The farmer who intends to make hemp his staple production, must not only have the kind of land suitable to its growth, but must also make up his mind to set aside the cultivation of such other of the vegetable productions, as come in contact, or interfere with, the growth of this article. Tobacco and hemp cannot be advantageously grown upon the same farm, unless one set of hands is allotted to each, for the crisis of each crop arrives at the same time. When tobacco is in that state requiring constant attention, the hemp is ready for cutting.

For hemp, the soil must be dry, rich and light. It will no more grow and flourish upon wet land than upon white oak knobs. The best timbered lands for its production are those upon which the natural growth is hackberry and elm. If these kinds prevail, particularly hackberry, with an undergrowth of pawpaw and hazel, it matters not what other varieties of timber are scattered throughout. Large grapevines, intertwining themselves among the branches of the trees, are always a concomitant of such a soil. Upon such a spot the first thing to be done is to grub up the undergrowth, taking all the roots possible with it. This should take place during the year previous, for, to leave new land in suitable order for hemp, it must be commenced upon the year before it is intended to be cultivated, as much of the timber must then be fell as possible, and all that is not made into rails, burnt up in heaps, or removed from the ground for other purposes. What timber is not removed should be belted with the axe, and, to insure its death, this should be done between the 15th June and 1st July.

Having removed the timber, to the extent intended, and burnt the brush, the sod is ready for the plough. It is best for an axeman (or boy) to accompany each plough, that whenever a root is struck it may be severed and thrown out, thus permitting the plough to pursue its course unobstructed. I have found the "Uncle Toby" Peoria Plough far preferable for turning the sod to any I have used. In fact I have never seen a plough that I liked as well for any kind of ploughing. After getting a close ploughing the ground ought to be well harrowed with a heavy

iron teeth harrow, and if the tool is not sufficiently heavy to tear the sods to pieces, it should have the addition of a log of wood lashed on it. It should then be cross-ploughed again and harrowed as before. Land cannot be too well broken up and pulverized for a crop of hemp to succeed well. Every lick it gets will improve its production.

Presuming a field, intended for hemp, to have been thus prepared during the previous year, it will be proper, as soon after the spring opens as practicable, to again turn it over and harrow it for the season's crop. The breaking up or turning of the surface of cultivated land, either by the plough, spade, or hoe, for the reception and growth of seeds, is a process so universally practised, and withal, so indispensable for the fructification and growth of the crops intended to be raised thereon, that it may be deemed incredible that such a common and simple affair should not be universally understood; and yet it cannot be doubted that many and frequent mistakes are made in this matter. Suffice it to say, that there is no crop grown, requiring such an absolute fineness and complete pulverising of the soil as hemp, and none that will pay as well for the work put on it. And this work cannot be carried on in a wet time. The earth cannot be put in the required order unless dry. Better do nothing than disturb its rest when in a wet or clammy state. No matter how wet the sod is when first turned over, but I speak of the ground after it has been placed in a state of preparation by the plough and harrow. The pernicious effects of stirring prepared or cultivated land when wet, not only destroys the growth of the *first*, but also of that of *several successive years*. Hemp ground thus prepared should not have a hoof of any kind pass over it.

Having, then, put the soil of the hemp field in the order specified, it may be laid off in lands sixteen or eighteen feet wide, with a log-chain made fast to the single-tree, and dragged after a single horse. When lands are laid off by a plough, although shallowly, for the sowing of seed of any kind, especially hemp seed, there is an inclination of the seed for the furrow, and it comes up in streaks. A harrow will follow the sower. The seed is sown broad-cast, at the rate of one and a half bushels to the acre. When sown thicker, the seed may be considered as thrown away—worse than lost—for all over this, will produce an undergrowth of hemp, smothered by the strong, thrifty stalks, which will be in the way of cutting, handling and breaking, and too short to amount to any thing except an impediment to the hands. I have tried it.

A dry or wet season setting in, soon after the sowing of hemp seed, is unpropitious for its full development—the dry season withholding a due moisture from the seed, thus preventing its germination; the wet, packing the soil hard, to be baked by the sun, when it exerts its influence. If the first two or three weeks is seasonable, the crop is as good as made. Whenever a crop has come up well, and passed the first three weeks in growing order, the leaves keep the moisture from being evaporated from its roots, by the sun, and the larger it gets, the better

order it keeps itself in. A drought seldom, if ever, hurts hemp a month old. To insure a heavy crop, the seed should be sown as early in April as practicable, taking into view the weather, as well as the preparation of the ground, for, although I have seen a good crop raised from seed sown in May, it is the universal opinion of those with whom I have conversed upon the subject, (sanctioned by my own experience,) that the sooner it is sown after the frost is from the ground, and it is in suitable order for ploughing, the better. Fine crops have been produced from March sowing. It is seldom, if ever, injured by frost. I never heard of the happening of such a circumstance.

Regarding seed, there is a diversity of opinion. I prefer that grown during the previous year, upon stalks cultivated as corn, for the sole production of seed, rather than of the growth of any preceding year, or from small hemp, unsuitable for cutting, left in the field. Old seed is uncertain. I have known a good crop, (1000 lbs. per acre,) produced from such seed, and I have known it fail altogether. Much, if not all depends upon the manner in which seed has been kept over. If it was well dried when got out of the chaff, and not permitted to get heated in large bulks, I presume it would germinate and thrive as well as any other. I think it safest, and of course best, for every farmer to raise his own seed—he then knows what he is doing, and what calculations to make for a crop. The pulp of the hemp seed may appear sound and fresh, and still it may not sprout. The seed sown should be run through a wheat-fan until all the chaff and whitish looking grains are exterminated.

When you are ready to commence sowing, should the earth be dry, and there exists little appearance of rain soon, I think it best to *plough in* the seed with a one horse plow—either share or shovel, and then harrow thoroughly, leveling the land throughout.

Hemp seed sown upon the kind of land designated, well prepared, will, in a common season, produce ten or twelve hundred pounds of the clear article, per acre.

I will recapitulate. For the successful growing of hemp, it is indispensable,

1st. To select a *rich, dry soil.*

2d. To sow *good, clean seed, early, and at a seasonable time.*

3d. To plough or harrow in (or both,) the seed, as the soil and season seem to require. But, although every thing else is done, if the ground is not *fine* enough, and clear of roots, trees, (which shade, particularly,) and turf, a good and productive crop must not be expected.

It must, however, be borne in mind, that hemp will not do well in old worn cut ground, unless it be first deeply ploughed, (say ten or twelve inches,) and sowed down in clover, to remain two years, and then turned over in the fall and permitted to remain a year more. It may then be turned over in the fall again, and remain until spring, when it is easily put in good order for hemp. Soil, *once rich*, will grow a first rate crop of hemp after bein[illegible] in this manner. I speak

experimentally. Neither will hemp grow well after a small grain crop of any kind. This fact has been fully tested. But after corn and tobacco, if these crops have been well and cleanly cultivated during the previous year, it quickly shoots up and grows rapidly and luxuriously; smothers down everything else, and arrives at maturity in August or September, according to the time of sowing. However late it may have been sown, hemp will always be ready for cutting in August, though it *will* wait for you a little longer.

For cutting hemp, some farmers use the cradle, and some the hook. With the former the common work for a hand is an acre per day—with the latter one half an acre or less. Where the growth is not over eight feet in height, it is thought best, by some, to cradle, but when higher, the hemp-hook is generally used. In fact, hemp ten or twelve feet high, cannot be cradled to advantage, and laid straight enough to handle with convenience. I use the hook always, from the conviction that more is saved in the article than is lost in the time. An inch at the bottom is worth a foot at the top, and, where the cradle is used the hemp cannot be cut so low as where it is cut with the hook. I have never yet seen the cradler who could cut as close to the ground as a hooker, nor is the hemp generally laid so well by the former as by the latter.

That the color of the hemp may be bright it should lay in the swath until a rain has occurred. The leaves then come off easily and the color is brighter. It is then put up in shocks, where it remains until the heat of summer has passed by—say October—when it may be spread for rotting. This is most conveniently done upon the ground from which it grew, which affords ample space. As soon as it is sufficiently rotted to permit the woody substance or pith to be easily broken, and seperated from the bark or lint, it should be taken up and again put in shocks, from which it is broken out in dry weather, during the winter.

Some farmers *stack* their hemp from the swath, and let it remain in that situation until rotting time, under the impression that hemp thus managed produces a brighter and better article. I doubt it, but of one thing am satisfied—that this process costs double labor, and that at cutting time, when it can be hardly spared. In the cultivation of hemp, seven or eight acres to the land is all sufficient.

Many machines have been invented and brought forward for the breaking of hemp, but I have never yet seen one that, taking into consideration time, expense and the manner of cleaning out the fibre, equalled the old fashioned hand-brake. Latterly, however, I have read an account of "Williams' Hemp-breaking Machine," which is said to be superior to any other yet invented, both regarding economy and good work. I hope it may succeed.

The staple of western hemp is equal to that of any other, and that it may meet a good and certain market, it is indispensable that it be clear of all foreign substances—the clear article—well prepared and baled in such order as to secure its transportation to any part of the world.

J. T. CLEVELAND.

Hazel Ridge, Mo., July [illegible] 1848.

ART. VII.—THE RISE, PROGRESS, AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

ARCHITECTURE.

ALTHOUGH it is supposed by some writers that the Hindoos and Phœnecians preceded the Egyptians in the pursuit of the Fine Arts; yet, as it is universally admitted that they were the first people who erected architecture into a science, we shall take that dark and mysterious land as the field wherein to begin our researches. Among the subjects of t e Pharaohs, Architecture, like all other works emanating from the creative sources of the mind, became under the control of the hierarchy, a powerful agent in the service of a religion whose influence, at once omnicient and fascinating, pervaded every condition of men, regulating and controling every employment, from the regal exercise of the sceptre down to the minutest occupation of domestic privacy; lending its massive grandeur to the perfect subjugation of the human intellect. The absolute control aimed at by her priests, rendered it necessary to make the Architecture of Egypt subservient to their successful despotism. Hence, those essences in the sublime, *terror! gloom!* and *obscurity!* which we find in all their public buildings, gave to this art a distinctive character far more imposing than those of any other people. The mythological tenets of their religion were stamped with an indelible hand upon all they did, and this beautiful art, which afterwards, in Greece, displayed its immense and captivating powers, remained for centuries in the same state in which the Grecks found it on their first acquaintance with Egypt. These, although nationally of a more modern date than the inhabitants of the valley of the Nile, with that quick perception of the grand and beautiful which naturally belongs to a nation breathing the heavenly air of freedom, looked at their stupendous structures, not for the purpose of producing servile copies, but of giving free scope to their creative powers, and exercising those faculties which most unquestionably prove the divinity of man's origin—taking the works of this wonderful people as a superstructure whereon to build, soon raised on their foundation an art of such sublimity as to cast its ennobling influence o'er all the land, imparting a soft and humanizing charm to the very people who gave it existence.

Under the guidance of the gifted sons of Greece, it at once rose to intellectual maturity, towering aloft, not for the purpose of o'ershadowing the intellect with a mantle of supernatural gloom—enslaving with the most appalling manacles the innate spirit of the divinity—but of developing the noblest qualities of man's nature, and drawing forth grateful adoration of the attributes of a host of imaginary deities who were supposed to preside over the destinies of the human race

Some of the essentials of the *sublime* pervaded all the works of the Egyptians, but it was reserved for the Greeks to embody the whole in their works of "fine intelligence." If the Greeks had been content to be mere copyists, or, perhaps,

imitators, the crowning glory of perfect art, *the Parthenon*, would not have arisen to adorn that classic land, or cast the immortal lustre of its faultless symmetry over the minds of succeeding generations. Its matchless beauty would never have had even a conception, to say nothing of an existence. It would but have lived under the shadow of its prototype's greatness, and at best have fallen short of its terrific grandeur.

In the intricacies of the labyrinth, our wonder and admiration are raised, not at the contemplation of its *beauty*, but its sublimity in the three thousand spacious halls, and chambers; imbued as they are with the omnipotent spirit of religion, you behold indeed the triumph of human industry, and its very elaboration serves to depress the soul into a slavish dependence on man, but fails to raise him a single step above the earth on which he stands. In the vast conceptions of the pyramids, although called by Strabo "barbarous works of sinful labor," we see a mighty evidence of the transcendent powers of mind. The agency of the laws of mechanics is not the first object that arrests the attention, wonderful as they are, they sink into comparative insignificance; our first emotions are raised at the God-like intellect that gave birth to the idea of such works, giving as they do, the almost perfect impressions of endless durability; works which have lasted for ages, and still seem destined to continue to the uttermost limit of the very globe which they inhabit.

"There can be no doubt," says the Rev. Dr. Russel, after having alluded to the great care observed in the mummyfication of the body, "that Egypt was indebted to the religious speculations of her ancient sages for those sublime works of architecture which still distinguish her above all the other nations of the primitive world."

"It must at the source be acknowledged," continues this author, "that in all countries comparatively rude; vastness of size takes precedence of all other qualities in architectural arrangement."

On the decline of the Arts in Greece, they arose in Italy, and shone with nearly equal splendor,* until a more humanizing form of religion changed the style of Architecture, and, in accordance with the refulgence of christianity, the light of Heaven was more freely admitted into her sanctuaries.

The great church of St. Peter's, in Rome, the most famous christian temple in the known world, stands alone in its grandeur, and seems to say,

> "They dreamed not of a perishable home,
> Who thus could build."

*"In the early period of the Empire," says Bloxam, "the Romans who derived their knowledge from Greece, imitated the Greeks to a certain extent in their public buildings of magnitude. Some of the constructive and decorative features of Roman Architecture were, however, different from those of pure Grecian design; and a style was formed more meretricious in effect, and of greater richness in detail, but wanting in the chaste simplicity and severe grandeur of the Grecian art."

The Gothic churches of the early and middle ages, richly adorned with

"Slender shafts of shapely stone,"

And

"The long drawn aisle and fretted vault."

echoed to the solemn anthem of the living God. The groined arches and stained glass windows of this beautiful order, created an atmosphere of reverence, which, without striking terror, assisted the worshipper in his devotional exercises.

"The irregularity of medieval buildings, united as it is with much apparent complexity, is apt to make a mere superficial observer imagine that such designs are not the result of that consideration and forethought exhibited in the works of classical antiquity; but this conclusion is very far from being correct, for although Gothic architecture adopted forms and laws which are the reverse of the ancient ones, it introduced new principles as fixed and true, as full of unity and harmony, as those of the previous system."†

A distinguished poet says, "the Greeks reared a structure which in its parts, and as a whole filled the mind with the calm and elevated impression of perfect beauty and symmetrical proportion. The moderns also produced a whole, a striking whole, but it was by blending materials and fusing the parts together."

In the wonderfully elaborate and vast cathedral churches of England, no expense seems to have been spared by those who reared them, the only thought or care seems to have been to exhaust the store-house of invention in the construction of buildings which would every way be worthy of being a christian temple and of the acceptance of HIM in whose worship they were intended to assist. The grandeur of design, boldness of execution, and perfect harmony throughout may well be termed sublime, and proves them not altogether unworthy of the poetical appellation bestowed on them by Coleridge when he called them

"The petrefactions of our religion."

[ARCHITECTURE CONCLUDED IN THE NEXT.]

† Anglican Church Architecture, by James Barr, Architect.

FOSSIL REMAINS.—We have been shown a mammoth tooth, recently found near Sulphur Springs, four miles south-west of Louisiana, weighing 8¾ pounds. It is of a bluish cast, and in a petrified state, and when found was embedded in the earth with the grinding surface exposed. The teeth of the monster of which this is a part, must have weighed over two hundred pounds—its head several thousand. The animal, we suppose, was one of the earliest inhabitants of the Mississippi Valley, and was well calculated for traversing its majestic rivers, prairies and forests. The tooth is in the possession of Dr. V. W. Emmerson of this town. —*Pike County (Mo.) Banner.*

IMPORTS INTO ST. LOUIS.

We give below a comparative table, showing the receipts of the principal articles of produce and groceries, at the landing in this city, from the 1st of January to the 1st of July, for the years 1846, 1847, and 1848, which we make up from our files, and which we believe to be as nearly correct as can be arrived at. In it is not included the direct shipments of produce from points above for New Orleans and the Ohio river, or any that is brought in by wagons; consequently it does not exhibit by any means all that is brought into our market. Had we any means of ascertaining, with any degree of accuracy, the amount of exports from this city, it would exhibit a much larger amount and more satisfactory evidence of the extent of our trade.

	1848.	1847.	1846.
Tobacco, hhds,	4,701	3,460	5,338
Hemp, bales,	24,831	59,647	21,282
Lead, pigs,	338,618	358,528	420,352
Flour, barrels,	150,979	235,374	113.316
Wheat, bush,	938.252	1,644,429	1,200,871
Corn, do,	240,028	844,673	427,259
Oats, do,	161,010	162,665	
Rye, do,	3,840	2,212	3,247
Barley, do,	65,036	28,198	13,641
Beans, bbls,	2,340	3,200	2,283
Sacks,	1,267	2,382	700
Flaxseed, bbls,	6,418	3,555	1,790
Fruit,* bbls,	5,997	7,550	3,374
Sacks,	2,960	8,361	1,088
Potatoes, bbls,	900	1,820	2,733
Sacks,	47,420	19,330	19,906
Pork, bbls,	68,455	35,992	43,621
Half bbls,	943	250	39
Beef, tierces,	3,415	1,162	
Bbls,	2,295	2,386	12,202
Half bbls,		192	126
Bacon,† casks and tierces	26,505	11,450	9,052
Bbls and boxes,	4,481	1,090	457
Bulk meat,† lbs,	6,625,244	2,522,418	700,430

Lard, tierces,	3,482		
Bbls,	70,912	28,293	23,537
Kegs,	9,544	7,175	12,269
Butter, bbls,	666	610	547
Kegs, firkins, &c.,	1,946	1,290	1,565
Cheese, casks,	22	53	270
Boxes,	3,142	2,379	5,463
Tallow, tierces and casks	121	40	105
Bbls,	287	171	916
Beeswax, bbls,	325	315	338
Packages,	382	460	374
Beef hides,	40,443	42,836	50,267
Whisky, bbls,	17,065	13,638	15,705
Sugar, hhds,	17,500	8,136	8,042
Bbls and boxes,	5,784	11,517	2,493
Molasses, hhds. and tierces,	153	368	
Bbls,	19,215	4,707	8,580
Coffee, bags,	33,556	30,296	42,913
Salt,‡ sacks and bags,	118,472	58,150	70,682
Bbls,	14,379	11,602	35,135

* Including green and dried apples and dried peaches.

† Including bacon and pork in salt.

‡ Including Liverpool, Turk's Island, Cadiz, &c.

DOMESTIC EXPORTS OF THE UNITED STATES DURING THE YEAR 1847.

Summary statement of the value of the Exports of the growth, produce, and manufacture of the United States, during the year commencing on the 1st day of July, 1846, *and ending on the* 30*th day of June,* 1847.

		Whalebone,	671,601
THE SEA.		Spermaceti candles,	191,467
Fisheries—			$3,468,033
Dried fish, or cod fisheries,	$659,629	THE FOREST.	
Pickled fish, or river fisheries, (herring, shad, salmon, mackerel,)	136,221	Skins and furs,	747,145
Whale and other fish oil,	1,070,659	Ginseng,	64,466
Spermaceti oil,	738,456	Product of wood—	
		Staves, shingles, boards,	

hewn timber,	1,849,911
Other lumber,	342,781
Masts and spars,	23,270
Oak bark and other dye,	95,355
All manufactures of wood,	1,495,924
Naval stores, tar, pitch rosin, and turpentine,	759,221
Ashes, pot and pearl,	618,000
	$5,996,073

AGRICULTURE.

Product of animals—	
Beef, tallow, hides, horned cattle,	2,434,003
Butter and cheese,	1,741,770
Pork, (pickled,) bacon, lard, live hogs,	6,630,842
Horses and mules,	277,359
Sheep,	29,100
	$11,113,074
Vegetable food—	
Wheat,	6,049,350
Flour,	26,133,811
Indian corn,	14,395,212
Indian meal,	4,301,334
Rye meal,	225,502
Rye, oats and small grain and pulse,	1,600,962
Biscuit, or shipbread,	556,266
Potatoes,	109,062
Apples,	92,961
Rice,	3,605,896
	$57,070,356
Tobacco,	7,242,086
Cotton,	53,415,848
Wool,	89,460
All other agricultural products—	
Flaxseed,	1,346
Hops,	150,654
Brown sugar,	25,483
Indigo,	10
	$177,493

MANUFACTURES.

Soap and tallow candles,	606,798
Leather boots and shoes,	243,816
Household furniture,	225,700
Coaches and other carriages,	75,369
Hats,	59,536
Saddlery,	13,102
Wax,	161,527
Spirits from grain,	67,781
Beer, ale porter, and cider,	68,114
Snuff and tobacco,	658,950
Linseed oil and spirits of turpentine,	498,110
Cordage,	27,054
Iron—pig, bar and nails,	168,817
castings,	68,889
all manufactures of,	929,778
Spirits from molasses	293,609
Sugar, refined,	124,824
Chocolate,	1,653
Gunpowder,	88,397
Copper and brass,	64,980
Medicinal drugs,	165,793
	$4,612,597
Cotton, piece goods—	
printed and colored,	281,320
white,	3,345,082
nankeen,	8,794
twist, yarn and thread,	108,132
all other manufact's of,	338,375
	$4,082,523
Flax and hemp—	
Cloth and thread,	477
Bags and all manufact's of,	5,305
Wearing apparel,	47,101
Combs and buttons,	17,026

Brushes,	2,967	Gold and silver coin,	62,620
Billiard tables and apparatus,	615	Artificial flowers and jewelry,	3,126
Umbrellas and parasols,	2,150	Molasses,	26,959
Leather and morocco skins not sold per pound,	29,856	Trunks,	5,270
Fire engines and apparatus,	3,443	Brick and lime	17,623
Printing presses and type,	17,431	Domestic salt,	42,333
Musical instruments,	16.997		$4,692,403
Books and maps,	44,751	Lead,	124,981
Paper and stationary,	88,731	Articles not enumerated—	
Paints and varnish,	54,115	Manufactured,	1,108,984
Vinegar,	9,526	Other articles,	1,199,276
Earthern and stone ware	4,758		
Manufactures of glass,	71,155		$2,308,260
tin,	6,363	Government stores to the army,	
pewter & lead,	13,694	from New York,	326,800
marble & stone,	11,220		
gold & silver & gold leaf,	4,268	Grand Total,	$150,637,464

RECAPITULATION.

The Sea,	$3,468,033	ducts,	177,493
The Forest,	5,996,073	Manufactures,	9,305,000
Agriculture,	11,113,074	Lead,	124,981
Vegetable food,	57,070,356	Articles not enumerated,	2,308,260
Tobacco,	7,242,086	Government stores to the army,	
Cotton,	53,415,848	from New York,	326,800
Wool	89,460		
All other agricultural pro-			

WOOL TRADE OF MICHIGAN.

In noticing the great increase in the production of wool in the State of Michigan, we are naturally led to inquire, why it is that the Lake region is so rapidly outstripping the Valley of the Mississippi in this branch of husbandry. We have doubtless a climate altogether as favorable for sheep, as that of Michigan; and when we reflect that every product of the field is cheaper here than in the vicinity of the Lakes, and that extensive districts in Missouri, especially, are so remote from market that scarcely any kind of grain will bear transportation, we are at a loss to perceive the reason that wool growing has been so much neglected by our farmers. We should feel ourselves under an obligation to any experienced farmer of the west who will favor us with facts upon this subject.

By reference to the imports into St. Louis for the four years ending the 31st of December, 1847, we find the quantity of wool received reported as follows: 1,377 bales in 1844; 1,899 bales in 1845; 1,903 bales in 1846, and 2,107 bales in 1847.

The following statement from the Detroit Free Press, shows the quantity of wool exported from Michigan in 1841 and for four years ending with 1847:

"The shearing season is now near at hand in this State, and a short review of the past may not be uninteresting. Our surplus is augmenting. There was shipped from the State in

1841, - - - - -	23,000 lbs.
1844, - - - - -	256,407
1845, - - - - -	412,081
1846, - - - - -	716,587
1847, a little over - - - -	1,000,000

We have taken some pains to ascertain the quantity exported from each port to the 31st of December. We here give it:

	1846.	1847.
Detroit, - - -	506,103 lbs.	760,716 lbs.
Monroe, - - -	84,426	153,400
St. Joseph, - - -	4,000	15,400
Toledo—from Michigan, - -	124,060	86,300
Trenton, - -		1,000
Grand Haven, - -		1,000
Mount Clemons, - -		30,000
St. Clair, - -		6,000
Newport, - -		400
	716,587	1,054,216
Exported since opening of navigation,		40,000
Total exports of 1847, - - -		1,094,216 lbs.

"In the Free Press of July 5th last, we estimated the crop of the State at 1,600,000 lbs., and put down for home consumption 500,000 lbs.; surplus for export 1,100,000 lbs.

"The returns of exports from the custom-house here, and shipments at Toledo, up to this time, make the amount less than 5,000 lbs. of our estimate.

"The great number of sheep that have been driven into the State the past season, and the natural increase, will probably give us a surplus of 1,600,000 lbs. the present season."

BANK REPORT.

Aggregate State of the Bank of the State of Missouri, and its Branches, on the 30th June, 1848.

RESOURCES.		LIABILITIES.		
Bills discounted,	$1,677,898 24	Capital stock paid in:		
Exchanges matured,	141,557 75	Owned by the State	$954,205 22	
Exchanges maturing,	462,256 26	Owned by indviduals	251,962 92	
State of Missouri, (acc't. current)	107,311 34			$1,206,168 14
Loan to State of Missouri, (to pay volunteers,)	4,276 93	Due depositors,		1,639,880 60
Bills receivable, (sale of real estate)	61,909 66	Unclaimed dividends,		867 73
Real estate,	126,260 72	Interest and exchange,		187,567, 41
Suspended debt,	18[illegible],932 48	Contingent fund,		110,898 28
Expense account,	14,311 88	Suspense account,		17,222 20
Protest account,	51 43	Circulation,		2,119,590 00
Due from Banks,	22,407 31	Due to banks,		191,405 73
Bank notes on hand of other Banks,	46,550 00			
Certificates Banks of Illinois,	192,013 33			$5,473,600 09
Warrants on State Treasurer, Mo.,	61 62			
Gold and silver coin on hand,	2,445,741 14			
	$5,473,600 09			

H. SHURLDS, Cashier.

State of the Bank of the State of Missouri, on the 30th June, 1848.

RESOURCES.		LIABILITIES.		
Branch at—		Capital stock paid in—		
Fayette for capital,	$120,058 84	Owned by the State,	$954,205 22	
Palmyra for capital,	120,058,84	Owned by individuals,	251,962 92	
Jackson, for capital,	120,058 84			$1,206,168 14
Springfield, for capital,	120,058 84	Due depositors,		1,523,877 98
Lexington, for capital,	120,058 84	Unclaimed dividends,		867 73
	$600,294 20	Interest and exchange,		148,936 52
Bills discounted,	848,458 86	Contingent fund,		110,898 28
Exchanges matured,	108,996 90	Suspense account,		17,222 20
Exchanges maturing,	234,166 05	Circulation,		1,100,600 00
State of Missouri, (account current)	107,311 34	Due to banks,		186,238 75
Loan to State of Mo., (to pay volunteers,)	4,276 93			$4,294,779 60
Bills receivable, (sale of real estate,)	51,969 66			
Real estate,	58,620 90			
Suspended debt,	102,197 25			
Expense account,	6,731 48			
Protest account,	22 43			
Due from banks,	13,454 54			
Certificates banks of Illinois,	192,013,33			
Warrants on State Treasurer Mo.,	61 62			
Gold and silver coin on hand,	1,966,204 11			
	$4,294,779 60			

H. SHURLDS, Cashier.

St. Louis, 30th June, 1848.

State of the Branch of the Bank of the State of Missouri, at Fayette, on the 30th June, 1848.

RESOURCES.		LIABILITIES.	
Bills discounted,	$145,876 14	Bank State of Missouri, for capital,	$120,058 84
Exchanges maturing,	89,448 76	Due depositors,	17,205,03
Real estate,	24,762 37	Interest and Exchange,	9,217 59
Suspended debt,	3,540 65	Circulation,	227,430 00
Expense account,	1,816 37	Due to banks,	1,310 68
Protest account,	4 55		
Bank notes on hand of other banks,	6,070 00		$375,222 14
Gold and silver coin on hand,	103,703 39		
	$375,222 14		

WM. C. BOON, Cashier.

Branch Bank State of Missouri, Fayette, 30th June, 1848.

State of the Branch of the Bank of the State of Missouri, at Palmyra, on 30th June, 1848.

RESOURCES.		LIABILITIES.	
Bills discounted,	132,631 81	Bank State of Missouri, for capital,	$120,058 84
Exchanges matured,	32,556 79	Due depositors,	16,922 16
Exchanges maturing,	13,396 45	Interest and exchange,	6,236 27
Real Estate,	14,429 35	Circulation,	200,600 00
Suspended debt,	34,115 03		
Expense account,	1,669 56		
Protest account,	5 85		$343,817 27
Bank notes on hand of other banks,	32,230 00	S. D. SOUTH, Cashier.	
Gold and silver coin on hand,	82,782 43	Branch Bank State of Missouri, Palmyra, 30th June, 1848.	
	$343,817 27		

State of the Branch of the Bank of the State of Missouri, at Jackson, on 30th June, 1848.

RESOURCES.		LIABILITIES.	
Bills discounted,	$203,913 75	Bank State of Missouri for capital,	$120,058 84
Exchanges maturing,	5,000 00	Due depositors,	$16,176 81
Exchanges matured,	4 06	Interest and exchange,	6,337 54
Real Estate,	5,105 14	Circulation,	195,300 00
Suspended debt,	8,687 75	Due Bank State Missouri, (account current,)	3,052 45
Expense account,	1,222 44		
Protest account,	19 60		
Bank notes on hand of other banks,	4,220 00		$339,925, 64
Gold and silver coin on hand,	111,752 90	T. B. ENGLISH,	
	$339,925 64	Cashier Branch Bank State of Missouri. JACKSON, 30th June, 1848.	

State of the Branch of the Bank of the State of Missouri, at Springfield, on the 30th June, 1848.

RESOURCES.		LIABILITIES.	
Bills discounted,	$161,709 46	Bank State of Missouri for capital,	$120,058 84
Exchanges maturing,	36,510 00	Due depositors,	30,055 07
Real estate,	9,579 00	Interest and exchange,	6,473 50
Suspended debt,	15,555 65	Circulation,	158,370 00
Expense account,	894 55	Due Bank State of Missouri (account currency,)	803 85
Bank notes on hand of other Banks,	2,640 00		
Gold and silver coin on hand,	88,872 60		$315,761 26
	$315,761 26	JAS. R. DANFORTH, Cashier.	
		Branch Bank State of Missouri, Springfield, 30th, June, 1848.	

State of the Branch of the Bank of the State of Missouri, at Lexington, on 30th June, 1848.

RESOURCES.		LIABILITIES.	
Bills discounted,	$185,308 22	Bank State of Missouri for capital,	$120,058 84
Exchanges maturing,	83,735 00	Due depositors,	36,643 55
Real estate,	13,763 96	Interest and exchange,	10,395 99
Suspended debt,	16,836 15	Protest account,	1 00
Expense account,	1,977 48	Circulation,	237,290 00
Due from Banks,	8,952 77		
Bank notes on hand of other banks,	1,390 00		$404,389 38
Gold and silver coin on hand,	92,425 80	WM. LIMRICK, Cashier.	
	$404,389 38	Branch Bank State of Missouri, Lexington, 30th June, 1848.	

MANUFACTURES IN ST. LOUIS.

LEAD PIPE AND SHEET LEAD MANUFACTORY, COPPER WORK, BELL AND BRASS FOUNDRY, STOVES, TIN, ETC.

We believe that there are but few individuals, even in our own city, who have made themselves acquainted with the nature and extent of its manufactures; for, although they are of recent introduction, yet there is scarcely an article that enters into the economy of the country, from a bottle cork to the largest class of steam boats, that cannot be furnished to order by our manufacturers and artizans of St. Louis. And many of our establishments, if they had existed in the eastern cities fifteen years ago, would have been exhibited by the citizens there, as monuments of extraordinary enterprise.

In our visit to the various manufacturing establishments of St. Louis, we have seen none that evinces more enterprise on the part of the proprietors, or more completeness in all its arrangements, than that of Messrs. Burd, Rucker & Co., at No. 45 Main street.

This establishment consists of a very extensive tin department—a copper department where are manufactured all kinds of copper work for fitting up steamboats, mills, distilleries, &c.—a *bell and brass foundry*, where church, steamboat, tavern, and fire engine bells of every size, from ten to one thousand pounds in weight, are cast, of splendid finish, and are said to be equal in tone to any that are brought to this market. The stove department is very extensive, and embraces almost every article in use in that line, including the celebrated imperial air-tight cook stove; and also an excellent article for heating churches. And moreover, they are extensively engaged in manufacturing sheet lead and lead pipe, large quantities of which are shipped to points on the Ohio, Missouri, Illinois, and the Upper and Lower Mississippi rivers; while they are also extensively engaged in laying their leaden pipe in the city, for the purpose of conducting water through the streets, dwellings, &c.

The business transacted under the direction of the proprietors of this establishment is, perhaps, equal in variety and extent to that of any other of the same kind in the United States, and we are gratified to learn, that thus far, the results have been satisfactory.

In noticing this establishment, we use the occasion to again call the attention of the people of the west to the importance of encouraging our own manufacturers; for this is the only way by which they can secure a permanent market and remunerating prices for the products of the soil. Mercantile facilities, though of great importance, can never give permanent prosperity to the country without the agency of the manufacturer and the artizan. These, with the laborers connected with their operations, constitute the principal consumers of the surplus products of agriculture, and wherever these are located, there a demand must

necessarily exist, and if located in our midst, we then have the advantage of a market free from the competition of foreign producers—an advantage which we never can possess so long as our markets remain at the distance of from one to three thousand miles.

PORTABLE SAW-MILL MANUFACTORY AND MACHINE SHOP.

Messrs. R. Clark & Co., proprietors of this establishment employ from twenty to thirty hands and use about fifty tons of bar iron and about one hundred tons of cast iron annually. Their mills are being extensively introduced throughout the west and southwest, and we are informed that the demand is rapidly increasing. In their advertisement they say their mill "is simple in construction, and easily kept in order, and can be moved on wagons as readily as a thrashing machine. It will saw from one to two thousand feet of common lumber per day, with one team of six horses, as an average business—and in better style than any other mill now in use. It is equally well adapted to steam, water, or horse power." The appointments of the shop are sufficient to make one of these mills daily. They also manufacture machinery for fitting up mills of every description, and from the extent of their establishment are able to fill all orders with promptness and despatch.

The portable saw mill is admirably adapted to the wants of new or thinly settled countries, where the demand for lumber is not sufficient to authorize the erection of more costly establishments, and the proprietors have shown good judgment in selecting St. Louis for the location of their establishment; for, from no other point could the article be so conveniently distributed to those districts where their use is required. We are informed that they have been sent from here to Texas, and even to Santa Fe.

The facilities of distribution constitute one of the most important considerations in the location of manufactories, and there is no point on the continent that possesses greater advantages in this respect, than St. Louis.

THE MEXICAN TREATY.

Treaty of peace, friendship, limits, and settlement, between the United States of America and the Mexican Republic, concluded at Guadalupe Hidalgo on the 2d day of February, in the year 1848.

In the name of Almighty God:

The United States of America and the United Mexican States, animated by a sincere desire to put an end to the calamities of the war which unhappily exists between the two republics, and to establish upon a solid basis relations of peace and friendship, which shall confer reciprocal benefits upon the citizens of both,

and assure the concord, harmony, and mutual confidence wherein the two people should live as good neighbors, have for that purpose appointed their respective plenipotentiaries—that is to say, the President of the United States has appointed Nicholas P. Trist, a citizen of the United States, and the President of the Mexican republic has appointed Don Luis Gonzaga Cuevas, Don Bernardo Couto, and Don Miguel Atristain, citizens of the said republic, who, after a reciprocal communication of their respective full powers, have, under the protection of Almighty God, the author of peace, arranged, agreed upon, and signed the following:

Treaty of Peace, Friendship, Limits, and Settlement, between the United States of America and the Mexican Republic.

ARTICLE I.

There shall be firm and universal peace between the United States of America and the Mexican Republic, and between their respective countries, territories, cities, towns, and people, without exception of places or persons.

ARTICLE II.

Immediately upon the signature of this treaty, a convention shall be entered into between a commissioner or commissioners appointed by the General-in-Chief of the forces of the United States, and such as may be appointed by the Mexican government, to the end, that a provisional suspension of hostilities shall take place, and that, in the places occupied by the said forces, constitutional order may be re-established, as regards the political, administrative and judicial branches, so far as this shall be permitted by the circumstances of military occupation.

ARTICLE III.

Immediately upon the ratification of the present treaty by the government of the United States, orders shall be transmitted to the commanders of their land and naval forces, requiring the latter (provided this treaty shall then have been ratified by the government of the Mexican republic, and the ratifications exchanged) immediately to desist from blockading any Mexican ports; and requiring the former (under the same condition) to commence at the earliest moment practicable, withdrawing all troops of the United States then in the interior of the Mexican republic, to points that shall be selected by common agreement, at a distance from the seaports not exceeding thirty leagues; and such evacuation of the interior of the republic shall be completed with the least possible delay; the Mexican government hereby binding itself to afford every facility in its power for rendering the same convenient to the troops on their march and in their new positions, and for promoting a good understanding between them and the inhabitants. In like manner, orders shall be despatched to the persons in charge of the custom houses at all ports occupied by the forces of the United States, requiring them (under the same condition) immediately to deliver possession of the same to the persons authorized by the Mexican government to receive it, together with all bonds and evidences of debt for duties on importations and on exportations not yet fallen due. Moreover, a faithful and exact account shall be made out, showing the

entire amount of all duties on imports and on exports collected at such custom houses or elsewhere in Mexico by authority of the United States, from and after the day of ratification of this treaty by the government of the Mexican republic; and also an account of the cost of collection, and such entire amount, deducting only the cost of collection, shall be delivered to the Mexican government, at the city of Mexico, within three months after the exchange of ratifications.

The evacuation of the capital of the Mexican Republic by the troops of the United States, in virtue of the above stipulation, shall be completed in one month after the orders there stipulated for shall have been received by the commander of said troops, or sooner if possible.

ARTICLE IV.

Immediately after the exchange of ratifications of the present treaty, all castles, forts, territories, places and possessions, which have been taken or occupied by the forces of the United States during the present war, within the limits of the Mexican republic, as about to be established by the following article, shall be definitely restored to the said republic, together with all the artillery, arms, apparatus of war, munitions, and other public property, which were in the said castles and forts when captured, and which shall remain there at the time when this treaty shall be duly ratified by the Government of the Mexican republic. To this end, immediately upon the signature of this treaty, orders shall be despatched to the American officers commanding such castles and forts, securing against the removal or destruction of any such artillery, arms, apparatus of war, munitions, or other public property. The city of Mexico, within the inner line of intrenchments surrounding the said city, is comprehended in the above stipulations, as regards the restoration of artillery, apparatus of war, &c.

The final evacuation of the territory of the Mexican republic, by the forces of the United States, shall be completed in three months from the said exchange of ratifications, or sooner if possible; the Mexican government hereby engaging, as in the foregoing article, to use all means in its power for facilitating such evacuation, and rendering it convenient to the troops, and for promoting a good understanding between them and the inhabitants.

If, however, the ratification of this treaty by both parties should not take place in time to allow the embarkation of the troops of the United States to be completed before the commencement of the sickly season at the Mexican ports on the Gulf of Mexico, in such case a friendly arrangement shall be entered into between the general-in-chief of the said troops and the Mexican government, whereby healthy and otherwise suitable places at a distance from the ports not exceeding thirty leagues shall be designated for the residence of such troops as may not yet have embarked, until the return of the healthy season. And the space of time here referred to as comprehending the sickly season shall be understood to extend from the first day of May to the first day of November.

All prisoners of war taken on either side, on land or on sea, shall be restored

as soon as practicable after the exchange of ratifications of this treaty. It is also agreed that if any Mexican should now be held as captives by any savage tribe within the limits of the United States, as about to be established by the following article, the government of the said United States will exact the release of such captives, and cause them to be restored to their country.

ARTICLE V.

The boundary line between the two republics shall commence in the gulf of Mexico, three leagues from land, opposite the mouth of the Rio Grande, otherwise called Rio Bravo del Norte, or opposite the mouth of its deepest branch, if it should have more than one branch emptying directly into the sea; from thence up the middle of that river, following the deepest channel, where it has more than one, to the point where it strikes the southern boundary of New Mexico; thence, westwardly, along the whole southern boundary of New Mexico (which runs north of the town called *Paso*) to its western termination; thence, northward, along the western line of New Mexico, until it intersects the first branch of the river Gila; (or if it should not intersect any branch of that river, then to the point on the said line nearest to such branch, and thence in a direct line to the same;) thence down the middle of the said branch, and of the said river, until it empties into the Rio Colorado; thence across the Rio Colorado, following the division line between Upper and Lower California, to the Pacific ocean.

The southern and western limits of New Mexico, mentioned in this article, are those laid down in the map entitled "*Map of the United Mexican States, as organized and defined by various acts of the Congress of the said Republic, and constructed according to the best authorities. Revised edition. Published at New York in* 1847, *by J. Disturnell.*" Of which map a copy is added to this treaty, bearing the signatures and seals of the undersigned plenipotentiaries. And in order to preclude all difficulty in tracing upon the ground the limit separating Upper from Lower California, it is agreed that the said limit shall consist of a straight line drawn from the middle of the Rio Gila, where it unites with the Colorodo, to a point on the coast of the Pacific ocean, distant one marine league due south of the southern most point of the port of San Diego, according to the plan of said port made in the year 1782 by Don Juan Pantoja, second sailing master of the Spanish fleet, and published at Madrid in the year 1800, in the Atlas to the voyage of the schooners *Sutil* and *Mexicana*, of which plan a copy is hereunto added, signed and sealed by the respective plenipotentiaries.

In order to designate the boundary line with due precision, upon authoritative maps, and to establish upon the ground landmarks which shall show the limits of both republics, as described in the present article, the two governments shall each appoint a commissioner and a surveyor, who, before the expiration of one year from the date of the exchange of ratifications of this treaty, shall meet at the port of San Diego, and proceed to run and mark the said boundary in its whole course to the mouth of the Rio Bravo del Norte. They shall keep jour-

nals and mark out plans of their operations; and the result agreed upon by them shall be deemed a part of this treaty, and shall have the same force as if it were inserted therein. The two governments will amicably agree regarding what may be necessary to these persons, and also as to their respective escorts, should such be necessary.

The boundary line established by this article shall be religiously respected by each of the two republics, and no change shall ever be made therein, except by the express and free consent of both nations, lawfully given by the general government of each, in conformity with its own constitution.

ARTICLE VI.

The vessels and citizens of the United States shall, in all time, have a free and uninterrupted passage by the Gulf of California, and by the river Colorado below its confluence with the Gila, to and from their possessions situated north of the boundary line defined in the preceding article; it being understood that this passage is to be by navigating the Gulf of California and the river Colorado, and not by land, without the express consent of the Mexican government.

If, by the examinations which may be made, it should be ascertained to be practicable and advantageous to construct a road, canal or railway, which should in whole or in part run upon the river Gila, or upon its right or its left bank, within the space of one marine league from either margin of the river, the governments of both republics will form an agreement regarding its construction, in order that it may serve equally for the use and advantage of both countries.

ARTICLE VII.

The river Gila, and the part of the Rio Bravo del Norte lying below the southern boundary of New Mexico, being, agreeably to the fifth article, divided in the middle between the two republics, the navigation of the Gila and of the Bravo below said boundary shall be free and common to the vessels and citizens of both countries; and neither shall, without consent of the other, construct any work that may impede or interrupt, in whole or in part, the exercise of this right; not even for the purpose of favoring new methods of navigation. Nor shall any tax or contribution, under any denomination or title, be levied upon vessels or persons navigating the same, or upon merchandise or effects transported thereon, except in the case of landing upon one of their shores. If, for the purpose of making the said rivers navigable, or for maintaining them in such state, it should be necessary or advantageous to establish any tax or contribution, this shall not be done without the consent of both governments.

The stipulations contained in the present article shall not impair the territorial rights of either republic within its established limits.

ARTICLE VIII.

Mexicans now established in territories previously belonging to Mexico, and which remain for the future within the limits of the United States, as defined by

the present treaty, shall be free to continue where they now reside, or to remove at any time to the Mexican republic, retaining the property which they possess in the said territories, or disposing thereof, and removing the proceeds wherever they please, without their being subjected, on this account, to any contribution, tax, or charge whatever.

Those who shall prefer to remain in the said territories may either retain the title and rights of Mexican citizens, or acquire those of citizens of the United States. But they shall be under the obligation to make their election within one year from the date of the exchange of ratifications of this treaty; and those who shall remain in the said territories after the expiration of that year, without having declared their intention to retain the character of Mexicans, shall be considered to have elected to become citizens of the United States.

In the said territories, property of every kind, now belonging to Mexicans not established there, shall be inviolably respected. The present owners, the heirs of these, and all Mexicans who may hereafter acquire said property by contract, shall enjoy with respect to it guarantees equally ample, as if the same belonged to citizens of the United States.

ARTICLE IX.

Mexicans who, in the territories aforesaid, shall not preserve the character of citizens of the Mexican republic, conformably with what is stipulated in the preceding article, shall be incorporated into the union of the United States, and be admitted at the proper time (to be judged of by the congress of the United States) to the enjoyment of all the rights of citizens of the United States, according to the principles of the constitution; and in the mean time shall be maintained and protected in the enjoyment of their liberty and property, and secured in the free exercise of their religion without restriction.

ARTICLE X—[*Stricken out.*]

ARTICLE XI.

Considering that a great part of the territories which, by the present treaty, are to be comprehended for the future within the limits of the United States, is now occupied by savage tribes, who will hereafter be under the exclusive control of the government of the United States, and whose incursions within the territory of Mexico would be prejudicial in the extreme, it is solemnly agreed that all such incursions shall be forcibly restrained by the government of the United States whensoever this may be necessary; and that when they cannot be prevented, they shall be punished by the said government, and satisfaction for the same shall be exacted—all in the same way, and with equal diligence and energy, as if the same incursions were meditated or committed within its own territory, against its own citizens.

It shall not be lawful, under any pretext whatever, for any inhabitant of the United States to purchase or acquire any Mexican, or any foreigner residing in Mexico who may have been captured by Indians inhabiting the territory of either

of the two republics, nor to purchase or acquire horses, mules, cattle, or property of any kind, stolen within Mexican territory by such Indians.

And in the event of any person or persons, captured within Mexican territory by Indians, being carried into the territory of the United States, the government of the latter engages and binds itself, in the most solemn manner, so soon as it shall know of such captives being within its territory, and shall be able so to do through the faithful exercise of its influence and power, to rescue them and return them to their country, or deliver them to the agent or representative of the Mexican government. The Mexican authorities will, as far as practicable, give to the government of the United States notice of such captures; and its agent shall pay the expenses incurred in the maintenance and transmission of the rescued captives; who, in the meantime, shall be treated with the utmost hospitality by the American authorities at the place where they may be. But if the government of the United States, before receiving such notice from Mexico, should obtain intelligence, through any other channel, of the existence of Mexican captives within its territory, it will proceed forthwith to effect their release and delivery to the Mexican agent as above stipulated.

For the purpose of giving to these stipulations the fullest possible efficacy, thereby affording the security and redress demanded by their true spirit and intent, the government of the United States will now and hereafter pass, without unnecessary delay, and always vigilantly enforce, such laws as the nature of the subject may require. And finally, the sacredness of this obligation shall never be lost sight of by the said government when providing for the removal of the Indians from any portion of the said territories, or for its being settled by citizens of the United States, but, on the contrary, special care shall then be taken not to place its Indian occupants under the necessity of seeking new homes, by committing those invasions which the United States have solemnly obliged themselves to restrain.

[CONCLUSION IN NEXT NUMBER.]

Subscribers to the WESTERN JOURNAL are authorized to remit by mail, and evidence that the money has been deposited in the post office directed to us, will be received as a discharge of our demand in case of miscarriage.—EDITORS.

TO AGENTS.

Such individuals as have been requested to act as agents, will please let us hear from them at an early day.

M. TARVER,

ATTORNEY AND COUNSELLOR AT LAW,

No. 99 Chesnut Street, St. Louis,

(TWO DOORS WEST OF THE POST OFFICE.)

T. F. RISK,

ATTORNEY AND COUNSELLOR AT LAW,

***Office*—23½ Second Street,**

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Original essays and communications upon any of the subjects embraced in our design, are respectfully solicited by the editors.

COMMUNICATIONS ARE INVITED UPON THE FOLLOWING SUBJECTS:

1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal Improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

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M. TARVER AND T. F. RISK,
EDITORS AND PROPRIETORS.

PUBLISHED MONTHLY.

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March 1, 1848.

THE

WESTERN JOURNAL,

M. TARVER and T. F. RISK, Editors and Proprietors.

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ART. I.—EDUCATION.

In the last number of the Western Journal, we endeavored to show that the happiness of individuals is dependant, in a great measure, on the social condition of the community in which they live; and also, that neither wealth nor intellectual improvement, can secure them against the many causes of inquietude which are involved in the ignorance and vices of those around them. And furthermore, having shown that universal education is the only means of securing to individuals the comfortable and safe enjoyment of their acquisitions, whether of wealth or knowledge—we propose now to consider whether the legislature of the State of Missouri is authorized, under the constitution, to carry this great object into effect; and if so, how far its consummation is practicable in the present condition of the country.

The first section of the sixth article of the Constitution declares that "Schools and the means of education shall forever be encouraged in this State; and the general assembly shall take measures to preserve from waste or damage such lands as have been, or hereafter may be, granted by the United States for the use of schools in each township in this State; and shall apply the funds which may arise from such lands, in strict conformity to the object of the grant. One school, or more, shall be established in each township, as soon as practicable and necessary, where the poor shall be taught gratis." We do not know what interpretation the statesmen of Missouri have given to this section of the constitution, or, indeed, whether it is considered in any other light than as an embellishment to that instrument. But in what light soever, it may have been considered by others, *we* have arrived at the conclusion that the general assembly is not only authorized to established schools where the poor shall be taught gratis, but that this is a measure strictly enjoined by the constitution, irrespective of the funds which may arise from the sixteenth sections.

The encouragement of education is the general object intended to be provided

for, and the establishment of "one or more schools in each township, as soon as practicable and necessary, where the poor shall be taught gratis," is a special provision, binding upon the conscience of every member of the legislature, who is sworn to support the constitution. And the *practicability and necessity* of establishing these schools are the only matters left to legislative discretion.

If we are right in our conclusion, that the general assembly is authorized to levy a tax for the purposes of education, this renders it practicable to establish schools in all cases, when and where they may be *necessary; and this necessity arises, and continues by operation of the constitution, as long as there remains any of the poor to be educated.*

The principal difficulty to be encountered, is to be met with in the projecting of a suitable plan of operation, and in adjusting the details in conformity to the condition of the country. The sixteenth sections were granted to the respective townships for their separate use, without regard to the value of the land, or to the number or condition of the inhabitants; and hence there must necessarily exist a great inequality in the extent of the provision made by the general government. And, for as much as the general assembly has no power to equalize this provision by taking from one township and bestowing on another, it would seem to be a reasonable and just policy to place the citizens of every township upon an equal footing, or as nearly so as practicable, by increasing the dividends in townships where they have been rendered small, either from the poverty of the sixteenth sections, or from the greater number of their inhabitants.

This principle, however, is not involved in our present plan—our object being simply to suggest a scheme for the education of the poor, in obedience to the requirement of the constitution. And to carry this into effect, we propose, that to the dividends accruing from the sixteenth sections, and "the State School Fund," the legislature shall add an amount sufficient to enable the poor to obtain a reasonable English education, and that the means shall be raised by general taxation, assessed on the same principles, and levied in the same manner, as other public revenues.

And to ensure a proper application of the money thus raised, it might be made the duty of the county court to determine who, within their respective counties, were entitled to the benefits thus provided, and to assign to each individual such amount as, under all the circumstances, the court may consider just and equitable.

The certificate of such appropriation would be a sufficient warrant for the admission of the individual in whose favor it was granted, into such school as might be most convenient for him to attend; and upon proof that the individual had been taught the length of time allotted to him, the court should certify the fact to the disbursing officer, for payment. Such a plan would require none of the complicated machinery and expensive details generally involved in free or public school systems. Indeed, it might be made the duty of the tax collector to

receive, and the county treasurer to disburse, this fund, without compensation, and thus the entire amount raised for the purposes of education would be applied to its legitimate object.

We learn from the census of 1840, that the number of free white persons in the State of Missouri was 326,362. Of these, 131,679 were over twenty years of age; and, out of this number, 19,457, equal to about fifteen in every hundred, could neither read nor write. There were 40,901 between the age of ten and fifteen years; and, if we suppose the population to increase one hundred per cent. on the number in 1840, before a system of education shall be carried into effect, this will give 81,802 individuals over ten and under fifteen years of age; and this number, divided by five, the number of years in this period, gives 16,360 as the number of individuals who annually arrive at the age of ten years. Now, were the State to make one year's provision for the education of fifteen out of every hundred children who arrive at the age of ten years, which is the proportion of such as could not read or write, as shown by the census of 1840, then it would have to provide for the tuition of 2,454 children annually, which, at an average of ten dollars each, (a sum that we imagine would be sufficient, with the addition of their respective dividends from the sixteenth section and State school fund,) would amount to $24,454, about twelve-and-a-half per cent. on the present assessment of the State tax; an amount so small that we cannot suppose that there is an individual in the State who would not rejoice in the privilege of paying it, if he was assured that it would be properly applied, and that the system would secure the education of every child in the State.

The allowance which we have made for the increase of population is probably too large; but, in other respects, we think the basis which we have assumed for the foregoing calculations, is sufficiently correct for all the purposes of practical legislation. The heaviest burthen of the system will be in the commencement; and it is probable that the sum which we have mentioned may not be sufficient during the first five or ten years to meet the entire demand; but, we may confidentially assume that, as time progresses, the proportion of the population requiring public aid, will diminish, and the burthen of providing for the education of the poor, will be lightened in proportion.

We have been, heretofore, inclined to advocate a more comprehensive system—one that would embrace every individual, of every degree; but there are many difficulties to be encountered in organizing such a system in a country so new and thinly inhabited as is the State of Missouri; and hence, we esteem it better policy to begin with a plan adapted to the condition of the country, and improve upon it as the population and resources of the State increase, than to aim at too much in the commencement. Indeed, after much reflection upon the subject, we are not certain but that the plan which we propose, possesses important advantages over that of educating the entire community, at the general expense of the State; for, while it secures instruction to the poor, it would seem to leave open

a wider field for individual enterprise; and if, in the course of one generation, we can exhibit to the world a State, in which every adult who is born within its limits can read and write, we shall have accomplished more than has ever yet been achieved by any other State or nation; and this we believe can be done upon the simple plan that we have suggested, and at comparatively little cost to the people.

Were the State to provide for the education of 2,500 children, annually, the number thus taught would, in forty years, amount to 100,000; and, if we suppose one-half of these to be living at the same time, who can estimate the moral effect which would be produced by fifty thousand individuals, owing their education, and, consequently, their improved condition, to the benevolence of the government under which they live? Let us contrast such a condition with the present state of society in Missouri, where fifteen out of every hundred over the age of twenty years, can neither read nor write—where one parent out of every seven is incapable of reading the Holy Scriptures, or the constitution of the State, and as ignorant of civil and political economy, as of the laws of the planetary system! What a brilliant field this, for the demagogue and fanatic! With such facts before us, who can wonder at their success; and as long as these facts exist, who so ignorant of human nature as to expect improvement in the social condition? In the present state of intelligence, one who, in seeking the accomplishment of his own ends, is unprincipled enough to appeal to the passions and prejudices of the ignorant, may boldly defy all opposition that is based upon truth and reason.

Besides, it may be properly regarded as unjust and tyrannical to subject this portion of our population to the laws of civilized society. For, ignorant of the principles of ethics, as well as of the laws of the country; acting habitually under the influence of their passions and prejudices; poor, and without the knowledge, as well as the means, of improving their intellectual condition; and liable, continually, to fall into error, how can they be subjected to the pains and penalties of disobedience to the laws, without violating the principles of natural justice? To require obedience from such individuals, is little less than the tyranny of Caligula, the Roman Emperor, "who wrote his laws in very small characters, and hung them up on high pillars, the more effectually to ensnare the people."

It is true, that the quiet and safety of society demand that the ignorant should be subjected to laws restraining them from violating the public peace, and from infringing the rights of individuals; but, while punishment tends but little, or, perhaps, not all, to improve the morals of the community, it may be safely affirmed that the costs incurred in prosecuting for offences against the State, and the expense of private litigation, arising from ignorance and its consequences, would be sufficient, at least, to educate all the poor in the State; and we believe that, in this item alone, the community would, in time, save more than the cost

of carrying out the system which we have proposed. But pecuniary considerations, however important, are not to be weighed against the moral advantages arising from a general or universal diffusion of knowledge.

The more we contemplate the provision of the constitution which we have been considering, the greater is our admiration of the wisdom and profound statesmanship of those who were instrumental in its adoption; and it is remarkable that those into whose charge the legislation of the State has been, from time to time, committed, should have done so little towards carrying out this great design of the convention.

Were all the poor educated by the State, it would act as a powerful incentive to the other classes to educate their children also; for few would be satisfied that their offspring should fall below the degree of intelligence attained by those who were educated at the public charge. And for this reason, it would be sound policy on the part of the State to establish a standard of education that would at least prepare every individual for the ordinary pursuits of society, and lay a foundation that would enable such as possessed sufficient intellect and industry, to acquire a knowledge of the higher branches of science and literature.

The benefits of universal education are so various and important, and must appear so obvious to every mind, that it would be as useless to offer arguments in its favor, as to undertake to convince one who was exhausted by hunger, that food would be grateful to his palate, or that it was necessary to restore him to strength.

We have not considered the minute details of the system which we have proposed, as we think there will be little difficulty in adjusting these, by the general assembly; provided that body should determine to raise the means neceesary to carry this, or some other system of public education, into effect. And, connected with this branch of the subject, we beg to suggest the propriety of applying to Congress for an additional grant of land for the purposes of education. There are circumstances in the history of the legislation of Congress in regard to the public lands, which raise an equitable claim in behalf of the States that have been admitted into the Union since the year 1820, to an additional appropriation for the use of schools. Anterior to that time, the minimum price of the public lands was two dollars per acre, and owing to the difficulty of extinguishing the Indian title, the quantity brought into market was scarcely equal to the demand, and consequently they were frequently sold at prices greatly above the minimum. But so much land has been brought into market within the last twenty years that it is only in cases where a tract possesses some extraordinary advantages, that it can be sold for more than one dollar and twenty-five cents per acre; and in the interior, distant from large towns and navigable streams, it will not sell at all unless it is of choice quality. It is evident, that in districts where the fee can be purchased for so small a sum, and where, too, there is an abundance of government land upon which individuals may settle at pleasure, that the school lands

cannot be leased upon terms that will afford any practical assistance in the support of schools; and this state of things is likely to exist for the present generation; and hence, for all available purposes, the grant of land to Missouri for the use of schools, is in fact, not worth more than one half of that made to the State of Ohio. And hence, it would be but an act of justice on the part of Congress to place Missouri and other new States, upon an equality, in this respect, with Ohio and other States, where the lands were sold principally under the old system.

Those who advocate the policy of granting public lands for purposes of internal improvement, in the district where they are located, will find arguments equally strong, in favor of a grant for the use of schools; for what would be a stronger inducement for emigrants to purchase and settle on the public lands, than the certainty of a school fund adequate to the education of their children?

Already has the State of Arkansas brought the subject of an additional grant of lands for the use of schools in that State, before Congress, and a committee of the Senate, to whom the matter was referred, have reported the following bill and recommend its passage:

A BILL ALLOWING EXCHANGES OF, AND GRANTING ADDITIONAL, SCHOOL LANDS IN THE STATE OF ARKANSAS.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That where the sixteenth section heretofore set apart for the use of Schools in the State of Arkansas has been, or shall be found of an inferior quality, unfit for cultivation, or unfavorably located, the inhabitants of each township under the authority of the State of Arkansas, shall be at liberty to relinquish the said stxteenth section, and to select in lieu thereof any other section, either as a whole section, or in any legal subdivisions within the same township that may remain subject to sale by private entry, or should none such remain in the same township, then the selection may be made in each case from any land within the limits of the State subject to sale by private entry, to be entered and recorded at the proper land office of the district in which the selected land may lie, and a proper conveyance made therefor, in the usual form under the authority of the United States.

SEC. 2. *And be it further enacted,* That there shall be selected in the manner set forth in the preceding section of this act, an additional section of land, either as a whole section, or in any legal subdivisions, for each township within the State of Arkansas and under its authority, which section is hereby granted for the use of schools within such township, and shall be recorded and conveyed as before stated.

SEC. 3. *And be it further enacted*, That the land authorized to be selected and granted by the first and second sections of this act or by any preceding acts for similar purposes, or any part of the same, may be, by the proper authorities, disposed of at public or private sale, or may be leased for a term of years, and the proceeds may be invested in some safe and productive stock, and applied solely for the use, support, and extension of schools in each of the townships within the State of Arkansas for which the grant may have been intended and made.

This bill was not reported until the latter part of the session of Congress, and will, therefore, in all probability, be left among the unfinished business. Missouri, and other new States, are in the same category in relation to this matter; and if they will make common cause with Arkansas, there is at least a probability of obtaining additional grants of lands for the purposes of education.

The immense extent of territory which we have recently acquired by treaty, will have a tendency to depress the value of wild lands, especially in Missouri, for many years to come; and there is but little revenue to be expected from the sixteenth sections, where they have not been already in some way disposed of.

Believing in the justice of our claims to an additional grant of land for the purposes of common schools, we trust that the general assembly will, at its approaching session, take the subject into consideration, and agree on some mode of bringing it before the national legislature.

ART. II.—MENTAL CULTURE.

[CONCLUDED FROM PAGE 429.]

THE pursuits in which men are engaged, very much influence the character of the mind, according as they are of an intellectual or merely physical nature. The members of the learned professions, when their minds are not the mere receptacles of authorities, which they sometimes become, are distinguished above the ordinary classes of men for discernment and mental superiority generally. And whence comes this distinction? The individuals who compose these classes rise up promiscuously from among the masses of society; they cannot be supposed to inherit or be gifted with a larger share of native intellect than an equal number of other men are endowed with, who are in like manner accidentally classed together according to the caprice of circumstances. They do not always receive a better primary education than those who are destined for mercantile and mechanical

pursuits—not in this country, at least, where the professions of a lawyer and a physician are so easy of access to all, and too frequently undertaken with but little preparatory training.

Yet men thus engaged, as they advance in their professions from steady application, insensibly gain superiority, and mostly take the lead in society, even in matters and on occasions often the most remotely allied to their proper studies. They become thus distinguished because their thinking faculties have been so much more effectually exercised than under other circumstances would have been the case; for where the ordinary man of most other professions has acquired one idea, they have from the nature of their studies, and from the necessity which they have been uuder of mastering them, gained a whole magazine of thought! The intellectual energy which they have acquired, gives them a commanding influence over all those whose minds have been less actively employed. They have not become scientific and professional men, and acquired the influence they possess, merely because they had the talents, but rather, they have the talents, and excercise the influence because they have been engaged in intellectual pursuits; and because the continued exercise of the uuderstanding constitutes the main business of their lives.

They have been engaged in diligent investigation—in comparing and deducing, dissecting and analyzing, not matter only, but mind; "they turn a thing on all sides, and examine it in all its variety of views; take it to pieces, and consider what would have been the result, if its members had been combined in a different way, or subjected to different influences." This is especially the character of the physician—not of him who regards his profession as a trade and follows it mechanically, but him who has seduously and philosophically studied it, with all its accompanying and kindred sciences.

This is the study of nature, and therefore one of the most comprehensive and ennobling that can engage the faculties of man. He enquires into cause and effect; examines the structure of organic animal and vegetable life, and admiring its harmonies, he philosophises upon the fitness of things.

In considering the principle of life, or the union of matter and mind, he observes how these two substances reciprocally act upon and sympathise with one another, until he enters the precincts of intellectnal and ethical science. In attaining to eminence in any pursuit, less probably depends upon what is called genius, than is generally imagined, but more upon energy and perseverance.

Genius is sometimes regarded as being an instinctive impulse, or

species of inspiration, leading the individual to an elevated *destiny*, almost without effort or consciousness.

The doctrine which affirms this of genius, or which regards it as a sort of intuitive perception, executing prodigies, and discovering new combinations of things without labor or study, is one which has done no little mischief in the world, by making men distrustful in many instances, of their own capabilities.

They have, frequently, no doubt, been deterred by it from mental exertion, in the belief that the power of genius was necessary for effecting that which only required from them habits of strict reasoning and persevering application; for diligence and perseverance have oftentimes effected what genius had left unaccomplished.

The characteristics for which men of true genius are comspicuous, are an untiring perseverance in the objects of their enquiry; their minds are incessantly curious—they possess a prying observation, which searches into all the causes and relations of things, and they thus acquire those habits of nice discrimination for which they are remarkable.

These characteristics comprise all that is extraordinary in the man of genius. "There is no 'diviniiy that hedges him*—no guardian spirit that accompanies him through life.'"

Having made these observations indicative of the circumstances in which mind is ordinarily developed, I will again revert to the period before the invention of letters, and to the advances in civilization then made by the human mind.

That very considerable progress had been made in this respect, by the people of different nations before letters were known, is a fact, concerning which we have undoubted evidence, and researches in ancient history have brought us acquainted with many curious and interesting particulars relating to their attainments. The ancient Egyptains, and the Mexicans on this continent, when their country was first discovered, (in the first war of *conquest* under Cortes,) afford the most remarkable instances. The Egyptians, in particular, as well known, had attained to no small degree of refinement, and even elegance, in their modes of living, without any other means, not oral, of communicating ideas, than the very imperfect one which rude picture writing, or a slight improvement upon this, supplied them with, and certainly without the use of an alphabet.

They had made a remarkable progress not only in the common, but the fine arts also; they had "much learning," and were proverbial for their wisdom, as testified in the pages of the Sacred Volume itself.

Many wonderful remains, indeed, still exist at this day unimpeachable witnesses of their progress and skill. In some of their arts they surpassed even the moderns. They possessed the means of tempering copper, and rendering it so hard as to cut and sculpture rock, which our best tempered steel will scarcely

*Shakspeare.

make an impression upon, specimens of which are now preserved in the British Museum.

They had the art, it is said, of liquifying gold, and some others which modern science and ingenuity have not yet attained to. And, without a knowledge of the mechanical powers and their application, as perfect at least as any that we are now in possession of, they could not have raised up those massive and lofty structures—their pyramids and pillars—some of which are yet standing, imperishable monuments of their skill, and apparently defying all the ravages of time, and every effort to remove them, after enduring for thousands of years. Their urns and vases, and the furniture of their sitting rooms, were designed and executed with such perfection of taste, as to be thought worthy of imitation in the present day, and they are frequently used as models in the construction of some of the most finished works of the kind now in use, and which embellish our modern withdrawing rooms and public edifices. It is even supposed by some antiquaries, that they were acquainted with the steam engine, and some vestiges of art not long since traced in the soil, give indications, it has been stated, of their having used railways, but this may be but a fanciful conjecture.

We have thus seen how much may and has been effected by a people without an alphabet, properly so called; but, as I before remarked, although the origin and primary impulse given to civilization is not attributable to letters, yet the time arrived when this wonderful auxiliary, this steam engine power of improvement, as it were, became necessary to any farther advancement, and to the attainment of a higher grade of civilization than any which could possibly be arrived at without its aid. For with all the arts and elegance which distinguished the civilization of the ancient people whom I have thus brought under notice, we find that they still cherished the grossest superstitions, and that their minds were held captive by the terrors of an ignorance as deplorable as that which in many instances now overshadows and keeps in bondage the minds of the least civilized races of our own age. If I am not mistaken in my recollection of their history—for I have no references at hand—they offered up human sacrifices to propitiate their monster deities. Their minds and imaginations, imbecile with gloom, were incessantly terrified with omens and prognostics of evils, for they were enslaved by an interested race of men—their priests—who maintained their *esoteric* and their *exoteric* mysteries under the most awful solemnities.

Inventions in the mechanic and other arts, might to a certain extent, have gone on and multiplied without letters; luxuries and material enjoyments might have continued to increase, and a certain amount of learning been still further accumulated, but that higher civiltzation which regards man as an intellectual and moral being, with capabilities for a high degree of excellence and consequent enjoyment—the attributes of a regulated mind and a cultivated sentiment, which distinguishes civilization in its most perfect state—could never, we may confidently assert, have been reached by him. Without literature, his enjoyments

would have continued for the most part, to be gross and sensual, partaking more of his animal than his intellectual nature, or he would have become the victim of a depraved ambition. The man of large capacities and gifted mind must have had scope for the restless activity of his faculties, then as now, and without the wide and diversified field which modern civilization affords for works of beneficence, scientific, literary and other like pursuits, he would have become, with few exceptions, the scourge and not the benefactor of his species. He would have continued to expend his activity, in the greatest number of instances, upon objects mischievous and oppressive rather than beneficial to mankind.

But not only would mankind have been unable, without letters, to extend their civilization, but without them they could not have long preserved and maintained that which they had already won; they must again have been merged in comparative barbarism, which we know from history to have been the case with regard to every people of high antiquity who had made the greatest advances.

But happily the printing press now affords a guaranty against any such disaster as a total retrograde movement for the future.

Yet with all the facilities for improvement which we possess, and they are far superior to those of any former age, we may degenerate much, should we heedlessly submit our minds to influences adverse to intellectual and moral culture.

Our literature itself may degenerate, and instead of exalting, which is its legitimate province to do, it may, in part, become the means of debasing us, should we fail to look well to its character, and to exercise a moral censorship over the press, whenever any symptoms of a demoralizing tendency, or of low and vulgar taste, become apparent. The sources from which our well-springs of intellectual life take their rise, and from which we derive a large portion of our moral sustenance, should be pure and supply us with an invigorating nutriment, or we may imbibe a subtle poison which may insidiously and imperceptibly diffuse itself throughout the moral system and infect the minds of our youth with a malady which we may find when too late, to be incurable. Our light literature is too generally inferior and frivolous, and is often, in other respects objectionable. This species of literature, however, if it be chaste and good, is not in itself to be objected to; on the contrary, a certain portion of it is desirable, but we are literally flooded with it, and have, indeed, scarcely anything else. And when the taste for it is too much indulged, it has the effect to dissipate and disqualify the mind for that which is more solid and instructive. As food for the mind, when too freely used, it is what confectionaries are to the body, it destroys our relish for more wholesome nutriment.

But these remarks are somewhat digressive; I must return to my subject. If the facts and representations which I have made in regard to mental culture, and the connection it has with literature, be as I have here presented them—and they are such as I have confidence in—they may serve to admonish us of this truth, that letters and the knowledge we cultivate, are not to be undertaken for their own

sakes, they are not themselves the end, but to be regarded as only the means to that end which we propose to accomplish.

They afford, as I have more than once observed, the best and most efficient means of mental culture, but their acquisition can only be regarded as cultivation according to the manner in which it has been made, and the amount of thought it has been the means of accumulating; subservient to this end they are of inestimable importance, and their use will to some extent always develop thought; it is, indeed, impossible that it should be otherwise.

But we know from the example of the Egyptians instanced above, and correctly, as I believe, represented, to how great an extent mind may be cultivated without letters and without printing.

With scarcely any of those adventitious helps which we in the present day regard as indispensable, that singular people simply used their faculties, and by the powers of observation and reflection which these supply, they were enabled to make that wonderful progress which has ever since called forth the admiration of the civilized world.

If a people thus circumstanced could so use their faculties, and under the discouragements which they undoubtedly had to contend with, what, I may be permitted to ask, might not reasonably be expected from all those modern appliances and the ready means of cultivation with which we, at the present time, are so liberally and so bountifully furnished?

I put the question independent of experience, and presuming upon a full knowledge of the advantages we possess. We have an easy method of preserving knowledge and communicating ideas, whether to the present or the absent; it is one which all may easily acquire, and as easily avail themselves of the attendant advantages. By this method, the knowledge, the discoveries, the ideas, the consciousness of any one mind can be simultaneously conveyed and spread out before the minds of distant millions. Intelligence of every kind, in its minutest details, can be transmitted through space and time so as to be comprehended by the most ordinary capacity that will bestow thought upon it, and this with but little cost.

We should naturally be led to infer—did not experience, unfortunately, admonish us of the rashness of such a conclusion—that in these circumstances, it would be rare to find among us an individual of mature years with faculties uncultivated in literary and scientific knowledge. But is this, or any thing approaching to this state of things, found to be the case?

Is it not rather the fact that entire committees might be pointed out who manifest the greatest indifference to all literary and scientific knowledge, and look upon the acquisition of it as a needless appendage to thought, and as being quite a matter of secondary importance, unless indeed, it be as a means by which to obtain some wordly advantage?

A craving for knowledge is as natural to the mind of man as a craving for food is to his body.

This is a fact sufficiently evident in the inquisitiveness of the child during the first years of infancy when the faculties begin to unfold themselves, and were the natural desires in this respect, always to be judiciously encouraged, and the child trained in accordance with those indications which nature never fails to give, the case would be the same with the grown man. It is the untoward circumstances with which we are surrounded from our early years which repress and often extinguish those desires or this curiosity in the mind and excite into predominant action the lower propensities. Much that was mischievous in society and prevalent of old, has been corrected by our superior civilization; there is less violence, tyranny and oppression in the world, and more of humanity and the amenities of life; but the evil passions of mankind are yet far from being only regulated; they have only taken a new direction. We have become changed without being regenerated. The march has been onward, but the good which has unquestionably attended upon our advancement is yet alloyed with much that is evil.

In the new circumstances in which mankind are now placed, influences but little resembling those of old, continue to divert our thoughts and turn them in a direction widely different from that in which our true interests are to be found.

Other passions invade us, which, if less flagrant and outbreaking in their nature may prove equally fatal to all over cherished hopes of realizing that happier social state of which we have the ideal, and which we are certainly capable of attaining to. The money-getting mania and the frenzy of political strife, have taken possession of us and refuse to be exorcised. While some are altogether engrossed with sordid aims which extinguish every better feeling, others, and among them many gifted minds, become consumed by a restless and depraved ambition to obtain place and power, which they seek by any means and at any cost.

These are the things which lead us far away from those objects of tranquil pursuit which are alone conducive to our well being and happiness.

But surely we can pursue our avocations in life and give exercise to the higher faculties also; we can sufficiently care for and attend to our worldly interests without losing all care and concern for what relates to the mind. We can equally guard our liberties without bartering our souls in the contest to maintain them. "If every man," says an ingenious author, "would but clearly ascertain what were actually necessary to his individval happiness and content, and would unconditionally pursue what best promised to secure that end, and heartily reject all the rest (for we cannot have every thing at once in this world) how many mistakes were avoided, how much petty ambition crushed, how much ease, joy and pleasure promoted. All would find a great over-proportion of happiness in life, instead of torturing themselves to the very brink of the grave to obtain what gives them neither tranquility nor enjoyment."

If those who neglect cultivation could be made rightly to appreciate its advantages, they would not fail to resort to it, and use the opportunities which they

possess. But "to examine, to enquire, to compare, to think," says an eminent author, "are not processes that suit an indolent mind; but they are exertions that every member of a civilized community should tax himself to perform."

It is indeed a difficult if not hopeless undertaking to persuade men not already convinced, of the advantages to be derived from study, and to engage them in the pleasing occupations to be found in the pursuit of literary and scientific knowledge; mere writing—mere words—will not, unfortunately, always excite men to think. The pleasures of intellectual exertion can only be duly appreciated by those who have experienced them, and the task of enlightening mankind, even in what immediately concerns their own welfare and happiness, has always been a thankless office. How frequently with rare benevolence, have the time and talents of the greatest geniuses been gratuitously employed in giving lessons of wisdom to the world, for the sole purpose of promoting the happiness of man—but how often, alas! have their rich veins of eloquence been poured into heedless ears.

Well might the sensitive author of the "Night Thoughts" fall back into his seat, overcome by a paroxysm of grief, when he found that all his efforts to engage the attention of his audience were unavailing. It was quaintly remarked by Bishop Taylor, that "It is impossible to make people understand their own ignorance, for it requires knowledge to perceive it, and therefore he that can perceive it hath it not."

This is, in most instances, strictly true; if I make the observation that "*knowledge is indirectly virtue and happiness*," I utter a sentiment which, very generally, no doubt, will receive a cold assent, but its forcibleness will in no degree be felt, except by those who have become fairly enlisted as the votaries of true knowledge, and with minds and morals in the right tone.

I may say in reference to the present subject, that happiness is to be sought for in the mind itself; that it consists in intellectual activity, in well regulated habits of mental discipline, and in the benevolent exercise of the social affections; but, neither can this possibly be understood by the sensualist, whose only gratification has ever been found in the pleasures which come directly through the avenues of the senses. He is convinced, indeed, of the insufficiency of those pleasures, and feels how transient and unsubstantial they really are—that when their novelty has passed away, they are altogether unsatisfactory to his after reflections; but, being unacquainted with any other mode of entertaining himself, or unable by any other means to banish from his mind the inane tedium of existence, he continues to pursue his ill-chosen and stale recreations. It is in vain that you admonish him of superior enjoyments in the endless gratification afforded by the pleasures of thought in a mind well furnished; thought is to him intolerable—he thinks only how to get rid of himself, and to banish reflection.

In solitude, where others often find the greatest enjoyment, he experiences only a feeling of wretchedness or discomfort.

Happiness and revelry are, with him, synonymous, and he is unwilling to believe that men of studious habits can participate in the pleasures of existence.

They appear to him to be melancholy beings, for there is nothing in common between him and them, with which his feelings can sympathise, and he is unfamiliar with the sentiment of the poet:

> "No man was ever truly blest,
> But it composed and gave him such a cast
> As folly might mistake for want of joy,
> * * * * * a smile at heart."

Although I have already transcended the limits which I had prescribed for myself in this article, I am unwilling to bring my observations to a close, without first subjoining a few admonitory sentences addressed to such readers of the "Journal" as may be yet young and just entering upon their active career in life.

Those who have been long conversant with the world, and whose habits of thought and conduct—whether fortunate or the contrary—are confirmed, are, it may be presumed, almost beyond the possibility of change, they will continue in the beaten path, and run their course.

I seek not to disturb them, and trust they will not be discomposed at any thing I would say. Others I bg leave to accost in the terms following:—

On you, who have the best portion of life still before you, and on those of your age, rest the hopes of the world for a happy future. It is on this account as well as out of the regard I have for your own immediate welfare, that I who am now verging to the close of existence, thus venture to address you.

Your minds and characters are as yet but partially formed and your destiny, therefore, unfixed.

You still have it in your choice whether to permit your minds to remain stationary, with those noble faculties which you possess unemployed, or employed only upon low and unworthy objects, and so ignobly live out a mere animal existence, or, whether you will with manly resolution determine to exert them, raise your aspirations, and become truly rational and intellectual beings, and occupy that rank in the scale of being which God and nature intended you should occupy. Some of you, it is probable, are yet undecided as to the course you will pursue, or know not yet the career you may be destined to run. You are buoyant with hope, no doubt, and full of confidence in your own powers and capabilities; it is quite natural for the young so to feel. But be not too forgetful of your own inexperience; you are yet untried, and know not how delusive are the hopes you cherish.

Life may seem to you a flower path, or a theatre for exhibition where you can carry off the prizes at will, and enjoy a lasting triumph.

Should such be the case, I would not take from you feelings so joyous if I

could; I am far from wishing to damp your ardor, or to deprive you of one cherished hope for the future; for to take away hope is to take away happiness.

I would say to you though, it may be well to temper those feelings, but continue to indulge in visions of hope, for they are often preferable to realities; nevertheless, I must inform you that there are many who have tried life under prospects as fair, and with feelings as flattering as any which you possess or can entertain,—many who have not been unsuccessful in their career—as the world estimates success—and whose locks are not yet grey with age, but who have found, notwithstanding, that a reliance upon externals, or mere worldly advantages, for contentment and happiness, is a deceitful reliance; one that is sure to end in disappointment and be attended with regrets, whatever, in other respects, may be the result, fortunate or unfortunate. As I have before remarked, the mind—the intellect—is not to be satisfied except with something *intellectual*; and this is especially the case in mature life, and still more so in life's decline, when the taste and the capacity for such enjoyments as we relished in our youth no longer remain with us. If, therefore, you would provide for your future well being in this world, and secure to yourselves that share of contentment and happiness which you may reasonably hope for, you must not only exert yourselves in your worldly vocation, whatever it may be, but you must cultivate your faculties and lay up resources within, such as nothing earthly can deprive you of, and which you can fall back upon when everything else from without fails you.

You must accumulate thought by storing your minds with various knowledge, that you may have a fund of entertainment ever fresh and enduring, and one with which the mind can never be satiated. But even as to success in the vulgar sense of the term, in regard to worldly advantages alone, you will find in a well informed mind its best guaranty. There is a wide difference between the man of cultivated intellect who uses his reason upon every thing which comes before him, whatever may be his calling, even if he has to live by the labor of his hands, and him who merely repeats the dull routine of his labor as a daily task' without once exercising his thoughts upon the "why or the wherefore."

The one will remain stationery; the work of a day will be the index of his life, while the other may open to himself a way to reputation and wealth.

Before closing this lengthened essay, a word of advice, aside, to you, regarding your worldly pursuits, may not, on this occasion, be thought inappropriate.

Whatever may be the object you have before you, should you be of an ardent temperament, beware of too much precipitance, or a faulty hastiness in seeking to attain it, or you may fail in the attempt.

Besides, there is such a thing even as that of a man's obtaining his object too soon, in which he may be less fortunate than he would have been had been it

longer deferred, and if he had encountered more difficulties in the pursuit. Napoleon, for twenty years, heaped victory on victory, to pine away at last on St. Helena, because he obtained his object too early and too well. The way to make a happy progress through this world is, to pursue one good object with steadiness and perseverance, and to avoid an over anxiety for the result. Your best reliance for success in your profession will be your industry, and the reputation you can establish for probity and fair dealing. In all circumstances, if you would avoid the self reproaches which never fail to attend upon wrong doing, maintain your integrity with scrupulous exactness. Resolve,

> "To do what virtue would, though sun and moon
> Were in the flat sea sunk."

In the following words of earnest exhortation, which I borrow from a German author, I say to you—"Be and continue poor, young man, while others around you grow rich by fraud and disloyalty; be without place or power, while others beg their way upwards; bear the pain of disappointed hopes, while others gain the accomplishment of theirs by flattery; forego the gracious pressure of the hand, for which others cringe and crawl. Wrap yourself in your own virtue, and seek a friend and your daily bread.

"If you have in such a course grown gray with unblenched honor, bless God and die."

I will end my remarks with a beautiful extract from a lecture delivered by the late Judge Story, before a "*Mechanics'* Institute" in Boston, which I insert for the benefit of that worthy class of citizens in the west. It is in the following language:—

"Much depends upon the object which a man presents to himself; whether he looks to the end and aim of the whole of life, or only to the present day or hour; whether he listens to the voice of indolence or vulgar pleasure, or to the stirring voice of his own soul, urging his ambition on to the highest object.

"If his views are low and grovelling; if the workshop, in its cold routine of duties, bounds all his wishes, his destiny is already fixed, and the history of his whole life may be read, though the blush of youth still lingers on his cheeks.

"It is not a tale twice told; it has been told for millions. If, on the other hand, he aspires to be a man, in dignity, independence, spirit and character, and to give his talents their full scope and vigor, if to a steady devotion to the practice of his art, he adds a scientific study of its processes and principles, his success is as sure as any thing on this side of the grave can be. He may even go further, and dream of fame; and if he possess the sagacity of genius, build a solid immortality upon the foundation of his own inventions."

Cooper county, Mo., July 1*st*, 1848.

ART. III.—PUBLIC ECONOMY FOR THE UNITED STATES.

BY CALVIN COLTON, OF NEW YORK.

We have long needed an American work on this subject. The European writers on political economy have, (to borrow a term from our author,) treated the subject *empirically* in adapting their systems to the country, the institutions, and social condition of the people for whom they wrote. And no class of writers have shown more loyalty to their government, or less sympathy with the great body of the people—the laboring classes. Political economy, according to the European schools, is essentially selfish—for, while it contemplates the increase of wealth in one nation, regardless of the interest of all others, it does nothing to diffuse this wealth, so as to ameliorate the condition of those by whose labor it is produced; and until mankind shall have attained a much higher degree of civilization, the intercourse between nations must continue to be governed by this principle. This proposition involves the policy of protection against the advantages which foreign nations possess in producing certain articles, by reason of some peculiarity in their social condition, rather than from advantages arising from their natural resources.

This is a branch of the subject which our author seems to have kept steadily in view throughout his work. We make the following extract from the third chapter, page 61:

Free Trade, as now used, involves a question of right and wrong, of justice and injustice, not between parties, both of which are American, but between all Americans, as one party, and the rest of the world, as the other party. It being assumed, that all Americans are interested in American labor, the question is, whether American labor, which, at great cost of blood and treasure, has gained an independent position and a fair reward, shall be again reduced to a condition of dependence and lose its reward, by being forced into a competition with the enslaved labor of foreign nations, especially with that of Europe, the comparative condition of which is set forth in other parts of this work. Or, to put it in another form, the question is, whether a party, once wronged, and having by its own virtue and energy rescued itself, shall be exposed unnecessarily to the same wrong again; whether it shall throw open its own doors, and give free entrance to robbers, because they choose to call their depredations "Free Trade." It is indeed "Free Trade" to them, by such consent, with profit; though it cannot be profitable to the party that is robbed.

"Free Trade," then, in its signification as now used, and in its practical operation on the people of the United States is, to allow foreign nations to bring their

labor for sale—or the products of their labor, which is the same thing—into this country without tax, against American labor, when the cost of the latter is three times as much as that of the former, and when, besides, it is taxed, in the maintenance of its own government, to purchase for foreigners this privilege; in other words, to allow foreigners to undersell American labor, in the American market, and thus to reduce its price and reward to the same level with that which is brought into competition with it, after which, as will be shown hereafter, the American consumer gets none of the benefit of foreign cheap labor, while American labor is broken down. This is a true and fair definition of "Free Trade." It is virtually a toleration of injustice, and that of the worst kind, because it is all done under the mock pretence of justice and fraternal intercourse; and the strangest part of it is, that this toleration should be consented to by the injured party.

This question of justice may be further illustrated by a consideration of the great and comprehensive fact involved in the obvious inequalities, physical and other, which are found in the condition and position of different nations; of their diverse interests; of the dissimilarities in their social organization; of their different degrees of improvement in productive labor and in the productive arts; and of the necessity of taking care of their own interests, arising out of these facts. No two nations are equal or alike; but in a thousand particulars are unequal and unlike. All these inequalities constitute weak and vulnerable points on one side or the other; and all these dissimilarities are so many necessities of a public policy adapted to them. Justice demands such discrimination, and it would be very great injustice not to employ and apply it in legislation and government.

If any choose to set up the impracticable theory, based on the assumption that all nations are one family, and that therefore a system of perfect Free Trade would be best for their aggregate interests—which is the romance of the Free Trade doctrine—it labors under the disadvantage of encountering two insuperable difficulties, first, that all nations are not one family. No one but a visionary could reason on such an assumption. Next, the practical operation of such a theory would concentrate the wealth of the world at once on the strongest points, and withdraw it from the weakest. It would make the young and weak nations slaves to the old and strong, and the tendency would be to give one nation, probably Great Britain, an ascendency over all the rest, to be constantly, positively, and relatively strengthened in that position; in other words, to make all nations tributary to one. For in whatever point or points any one nation might be the strongest, at the commencement of such a system, she would not only be able to maintain that superiority, but constantly to augment her relative power and influence in these, and by the help of these, in other particulars. It is possible, indeed, that the great family of man, as one family, might accumulate more wealth in a given time, under such a system. We will not pretend to decide, as it is quite unnecessary. The great and insuperable objection to it, is that the wealth

and magnificence of the world would be concentrated, at the expense and by the impoverishment of nearly all its parts.

Such, really and truly, in its operation, is the Free Trade theory; and such would be its natural and unavoidable results. It would be a total prostration of all the barriers which guard and defend the interests and rights of particular communities, called states and nations, always putting the weaker in the power of the stronger, up to the strongest of all, the last of which would absorb the control over all the rest. It would create a universal dominion for one stupendous power—which could easily, and would naturally, be converted into a world-wide despotism, without one loose fragment to be disengaged from the sway of its sceptre.

But it is thought, by reasonable persons, that the interests of humanity and the rights of man are best protected by fortifying the weak against the encroachments of the strong, and by setting up all possible barriers against that "Free Trade" which consists in spoliation, and which arms only the mighty against the defenceless. It is generally thought best rather to multiply independent sovereignties, than to diminish the number, by allowing the greater to swallow up the less; rather to surround the less with muniments of defence, than to rase to the ground those already standing. It is shown, in a subsequent chapter, that the occasion of the American revolution was a wrongful absorption of the commercial values of the colonists by the British crown, and that the benefits of the acquisition of national independence, consisted in the establishment of a power competent to retain and defend those commercial values. But "Free Trade" would expose these values to be drawn away, and again to be absorbed by foreign exchequers. It is simply a question of justice, as the American revolution was a war of justice—of justice to the nation and to the people—and precisely, identically the same interests are at stake now as then. "Free Trade" would give up all which American independence acquired—all that is worth having.

The only hypothesis of society that is consistent with Free Trade, is, that all nations should be equal and alike in all respects. Can any thing be more absurd than a theory which demands this? It requires that as a basis which is not, never was, and never can be. Even if a universal millenium of republican institutions, or of any other form of government that might be thought best, after all experiments, could be brought about, so that all nations should be exactly alike in their social organization, without the slightest dissimilarity, and admitting that every nation should have made precisely equal advances and improvements in the various applications of labor and art; still the physical diversities of climate, geography, geology, mineralogy, and a thousand other particulars, entirely independent of social organization, which would necessarily appertain to each nation or state, creating many great and peculiar interests, would be an insuperable bar to the introduction and practice of Free Trade, and would occasion very great injustice to some of the parties, if the system should be established.

But the actual social dissimilarities among nations, as elsewhere shown in these pages, interpose a far more formidable obstacle to Free Trade, than all physical differences. This constitutes a greater objection in the United States, than in any other nation that can be named. The high prices of labor and capital in this country, are the results of a cheap social organization, or cheap government; and the effect is now as necessary to sustain the cause, as the cause was originally necessary to produce the effect. They are now reciprocally cause and effect of each other. The difference between this state of things and that of Europe, is that what is saved by cheap government in the United States, goes to the people, and what of commercial values is extorted from labor in Europe, is absorbed by the governments and by the high and independent classes of society. In Europe the wealth of the wealthy and the power of the great, are sustained by this usurpation of the rights of labor. In the United States the rights of labor were intended to be protected by a bar to such usurpation, which consists in social organization—these rights being always understood to be commercial first, and political as a consequence, or because they are commercial. The moment the bar adapted to this position of things, and to these interests, is removed by letting in Free Trade, all these commercial interests of the people of the United States, which consist in the high prices of labor and capital, are exposed to be reduced to the level on which the same things stand in foreign parts, in the same manner as water of different heighths in two adjunct basins comes to a level, by the removal of the partition which divides them. By this means all the advantages of the social organization of this country would be sacrificed, lost, swallowed up; and the great misfortune would be, that, as the water was highest in our basin, it would flow away from us, and none would come back.

When foreign labor which costs ONE—or its products which are the same thing—comes into the same market, on a Free-Trade platform, with American labor which costs THREE—or with its products which are the same thing—it is absurd to suppose, that American labor will still maintain the relative value of *three to one*. They must both come to the same level. The social organization of the United States, as being of little cost, would then be of no value to the American people, but all the profit would redound to the interests of foreigners and of foreign potentates. Or, with this change in the condition of the people, before independent, now abject, would come a corresponding change in their character; and with these changes would naturally follow a change in the government, from cheap to costly, and from a government that serves the people and obeys their will, to one that would serve itself and follow its own will. In other words, as Free Trade must necessarily reduce the American people, in their condition and character, to the level of foreign abject nations, so would it elevate the American government to the same height of power and grandeur with foreign governments, to be independent of the people, under which the labor of the people, as in Europe, would become the agent of power, as described in a subsequent chapter.

For, when the people shall have surrendered or lost their rights, it would be strange and unnatural if the government should not usurp the high and independent prerogatives laid at their feet, instead of yielding them to foreign powers. The social organization of all nations accommodates itself to the condition and character of the people, and will correspond with it whether as cause or effect. At present that of the United States is a bar to Free Trade, because the condition and character of the people is inconsistent with it. Their instincts make them aware that they cannot work on the same terms with the poorly-fed, ill-clad, worse-housed, and uncultivated, abject laborers of foreign parts. It is true, indeed, that some experiments of Free Trade have been attempted in this country, by approximation; but, as will be shown hereafter, every such experiment has brought widespread calamity in its train, and shaken the republic to its centre and to its foundations. The reason of these disasters and convulsions, so widely and so profoundly felt, will be found in the social organization of the country, and in the condition and character of the people, they being incompatible with such experiments, and incapable of enduring them without instinctive alarm and sensible effect, as if tending to dissolution.

The objections to the protective principle are the reasons for it, in the United States. One objection is, that it is unjust. One of its best reasons is, that it is the only way to secure the ends of justice in the case. What could be more unjust than to reduce American labor, in its reward and condttion, to that of Europe? It has been averred, indeed, but without evidence, and with the sanction of a mere hypothesis, that it operates unjustly on the consumers of protected articles. It will be shown, in a future chapter, that protection, in the United States, is no tax; so that the only objection that can be raised, on the score of justice, falls to the ground.

It is also alleged, that a protective system—M. Say, stigmatizes it as the "exclusive system"—is unfraternal in one nation toward another. How can justice be unfraternal? It is inequality and dissimilarity of condition and circumstance, which render such measures necessary to prevent injustice. Can fraternity either demand or impose anything but what is right? Suppose it has been found necessary to protect American labor. The foreign millionaire, who has robbed the labor of his own country of two-thirds of its fair compensation, and who by that means can afford to undersell American labor in its own market, complains of a want of fraternity, because the American government will not let him do it! Fraternity, in such a case, demands too much.

Again, at page 84, the author says:

Here, then, under a system of Free Trade, is opened a field on which whole nations, all Europe, the entire foreign world, with their systems of commercial policy, and all the parts of those systems, in which individual and associated enterprise operates, with all the power of their cheap labor and more perfect arts, descend upon us, without let or hindrance; enter our jurisdiction without tax and

without condition, freighted with their wares and merchandise; avail themselves of all our public works and facilities of transportation, created by our labor and at our cost, to penetrate every corner of the land, entering every cabin in the remotest parts of the western wilderness; for what? and to what end? To sell to our farmers throughout the length and breadth of the land, corn, wheat, rye, barley, beans, and every species of breadstuffs that can be named as the product of our soil; to sell us beef, pork, mutton, butter, cheese, lard, chickens, and every species of meat that we produce; to sell us cattle, horses, mules, and every beast of draught and burden; hay, oats, provender, and every thing that constitutes the sustenance of these animals; to sell our planters rice and cotton; in a word, to sell us, Americans, the products of forests, the fowls of heaven, and the fish of the sea; to sell us every thing that land and water produce by the sweat of those who toil on them; for, we have proved elsewhere, that all these things enter in disguise into the products of manufacture, and that the former compose the greatest portion of the latter; of the truth of which, no man that reflects, can for a moment doubt. It is a great and comprehensive fact. And they not only sell, but they force us to buy. We cannot help it, under a system of Free Trade. They are here, in our market, with their wares, composed in the manner above described; of the very things which we produce, in abundance, and with surplus; but for want of the encouragement of Protection, we cannot put them in these necessary and convenient forms. We must have them, though the very materials of which they are made, perish on our hands for want of a market; though our labor stands still; though our skill be fully adequate to produce the same things; and though we could make them cheaper and better, under a system of Protection.

Nor is this all. Under a Free Trade system, foreigners come here, without tax or condition, to sell labor itself, and art of every kind: agricultural labor, on an immense scale, as seen above; manufacturing and mechanical labor of every description, and all the arts, useful and ornamental.

And what is the effect of all this on the labor and arts of this country? Clearly our wants, and our ability to consume, are limited. All that we buy, in this way, of foreigners, which could and would be produced by ourselves, under a system of protection, is so much abatement of the demand for home labor. This is determined with all the accuracy of figures and mathematical quantities. To the same extent, it checks our advancement in the arts. And not the least of the misfortunes is, that, to the same extent also, it subtracts from our ability to buy. We are not only so much poorer, as we should have been richer by this saving; but also so much poorer as the amount of this unnecessary expenditure. Here is the secret of the foreign balances against us, which Free Trade invariably brings upon our heads, as shown in another part of this work. Nor is it an answer to say, that we must buy, in order to sell; for we have also proved, in another place, that the country always trades more with foreign parts under a Protective, than under a Free-Trade system.

The objections to free trade, and the importance of protection are, we think, fairly stated in the foregoing extracts, and require no comment. We extract the following paragraphs to show how large a portion of the value of foreign manufactures consists of agricultural products, and how much we contribute, by the purchase of British fabrics, to the payment of the enormous rents, and high prices of provision in that country. Notwithstanding we have endeavored to illustrate this subject in previous numbers of our Journal, yet we consider that a clear perception of its bearing on the agricultural interest of this country is so important, that we desire to fortify our own views, by the opinions and the authority of others:

We have (says the author,) imported yearly, for twenty-six years—so says Mr. Walker's report—more than ten millions of dollars worth of *woolen goods*. Last year we imported $10,666,176 worth. Now, one-half and more of this cloth was made up of wool, the product of labor and agriculture. The general estimate is, that the wool alone is half. The universal custom among farmers, when they had their wool manufactured on shares, was to give the manufacturer half the cloth. Thus we import, and our people have to pay for, *five* millions of dollars worth of foreign wool, mostly the product of sheep-feeding on the grass and grain of Great Britain, to the prejudice of the market for our own wool; and this is the policy, gentlemen, recommended to our farmers!

* * * * * * * * *

What is true of cloth is equally true of everything else. Take a hat, a pair of shoes, a yard of silk or lace, analyze it, resolve it into its constituent elements, and you will find that the raw material and the substance of labor, and other agricultural products, constitute more than one-half of its entire value. The pauper labor of Europe employed in manufacturing silk and lace, gets what it eats, no more; and this is what you pay for, when you purchase their goods. The article of iron is a stronger case. Last year, according to Mr. Walker's report, we imported $9,043,396 worth of foreign iron and its manufactures, mostly from Great Britain, *four fifths* of the value of which, as every practical man knows, consist of agricultural produce—nothing else. What gives its value? The labor of horses oxen, mules, and men. And what sustained this labor, but corn, oats, hay, and straw for the one, and bread, meat, and vegetables of every kind for the other? These agricultural products are purchased and consumed, and make up nearly the whole price of the iron, which the manufacturer receives and pays over to the farmers again and again, as often as the process is repeated. Is not iron made in England of the same materials that it is made of here? Certainly. Then is not *four fifths* of the value of British iron made up of British agricultural produce? And if we purchase nine millions of dollars worth of British iron a year, do we not pay six or seven millions of this sum for the produce of

British farmers—grain, hay, grass, bread, meat, and other provisions for man and beast—sent here for sale *in the form of iron?*

* * * * * * * * *

The following extract from Adam Smith will show that he was aware of this great truth in public economy, though it is singular that it should require three fourths of a century for its full development: "A piece of fine cloth which weighs only eight pounds, contains in it the price, not only of eight pounds weight of wool, but sometimes of several thousand weight of corn, the maintenance of the different working people, and of their immediate employers. The corn which could with difficulty be carried abroad in its own shape, is in this manner virtually exported in that of the complete manufacture, and may easily be sent to the remotest corners of the world. In this manner have grown up naturally, and as it were of their own accord, the manufactures of Leeds, Halifax, Sheffield, Birmingham, and Woolverhampton. (Now may be added Manchester, Paisley, and many other manufacturing towns of England and Scotland.) In the modern history of Europe, their extension and improvement have generally been posterior to those which were the offspring of foreign commerce. England was noted for the manufacture of fine cloths made of Spanish wool more than a century before any of those which now flourish in the places above mentioned were fit for foreign sale. The extension and improvement of these last could not take place but in consequence of the extension and improvement of agriculture, the last and greatest effect of foreign commerce, and of the manufactures immediately introduced by it."

The English Free-Traders have overshot the mark, and given advice to all the world, which was designed for home consumption. They would have been more wise, if they had held all their debates with domestic opponents, behind closed doors. For example, in the "Examiner," where we find Mr. Brown's letter, we also find an article the next month, of which the following is an extract: "Manchester, Birmingham, and Leeds, are the great merchants who buy the duke of Buckingham's wheat [a metaphor, meaning any Englishman's wheat,] at 55*s.* per quarter, pay a bounty of 20*s.* with it [making 75*s.* per quarter,] and then sell it abroad at 35*s.* per quarter. In fact, it is the foreigner who pays the farm laborer and the landlord's rent; and if the Chinamen, and the Yankees, and the Germans, were to stop payment, what would become of mortgages and daughters' settlements."

It cannot be denied, that this is a candid disclosure; and if "*the foreigner,*" especially "the Yankees," are not instructed by it, they must have lost their reputed sharpness. Is not this cool, not to say impudent, for an English Free-Trader to insult the world with such a notice? It is the "*Yankees,*" then, who redeem their mortgages, and furnish the daughters of the English landlords with settlements, by consuming their agricultural products, in the form of manufactured goods! This, doubtless, is the exact truth. Some, perhaps, will be puzzled to

discern what this writer means by purchasing "the duke of Buckingham's wheat" at a cost of 75*s.* per quarter, and selling it at 35*s.* It is simply this: It goes into the mouth, "laboratory," of Mr. Brown's "wonderful intellectual machine, man," the British operative, "and gives him the physical power, aided by steam, of converting it into broadcloth, calico, hardware," &c. This "physical power," imparted by the bread, is such a multiplication of the power of its cause, that a moiety thereof is worth more than the whole cost of the power that produced it; and this is the way in which they buy "the duke of Buckingham's wheat" at 75*s.* per quarter, and sell it at 35*s.*

That this great and important doctrine, viz., *that agricultural products and labor incorporate themselves with those of manufacture, constitute the principal part of them, and go forth in this disguise to market, at home and abroad, wherever the articles of manufacture are in request*, is well understood in England, appears to be evident enough, though all British economists, for reasons that appear elsewhere in this work, have taken good care to keep it out of sight. It only requires, that it should be understood in the United States, and the agriculturalists, the farmers, of this country, will then see where their true interest lies. It lies in a protective system, that shall secure a home market for their products. Nature, sound policy, and Providence, seem to have decided, that agriculture and manufactures, in the United States—anywhere, indeed—should support each other, and that they together should keep commerce in motion, to distribute their products over the face of the earth; for the products of manufacture are but the products of agriculture in disguise, as above shown, and this is the only way in which the prices of American agricultural labor can be sustained at home and abroad. Let American agriculture find a market in American manufactures, by an adequate system of Protection, and it has the market of the world at its feet, which otherwise it could never have—nor the smallest part of it—at remunerating prices. It will be no use for American farmers to raise corn for Europe and other foreign parts, when the return of favorable seasons shall bless them with good crops again, so long as labor is lower there than they are willing to work for. They must soon get sick of that. Immutable laws have decided against it. But there is not a single manufacturing or mechanic art, if adequately protected, in which American skill cannot equal that of Europeans, in a course of time. And if Americans can equal them in skill, they can equal them in all things else, and gradually obtain their proper share of the market of the world; for European, and all foreign nations, labor under disadvantages, inherent in their institutions, from which the people of the United States are exempt. Even under the slender and inadequate protection extended to American arts heretofore, Americans, in some things, have entered into competition over the wide world, with the boasting mistress of the arts, that boasts of being mistress of the seas, and were rapidly gaining upon her under the tariff of 1842. That is conclusive evidence of what can be done. In this way, and in no other, can the prices of American labor be

sustained. That devoted to agriculture would be kept up, because the policy supposes that it would, as near as convenient, have in view only the supply of the home market, which is always best, most uniform, and most secure. The prices of manufacturing and mechanical labor would be kept up, first, because experience proves it; next, because it could be afforded; and thirdly, because labor would occupy a position to demand it. And lastly, the prices of manufactured articles would be kept down, and reduced still lower, first, because experience proves that, too, as shown in these pages; and next, because they *must* be reduced, in order to compete with the manufactured products of Europe. It is in a home market only, that American agricultural labor can ever be secure of its reward; and the experience of Great Britain proves, as shown in this chapter—all experience proves—that the market for agricultural products in a great manufacturing system, like that of England, and like that which might be erected in the United States, under an adequate system of Protection, is indefinite, boundless.

The work throughout bears the impress of a vigorous intellect, and a commendable enthusiasm for the best interest of every class of American citizens, and we beg to recommend it in the strongest terms to the patronage and study of the American people.

ART. IV.—INTERNAL IMPROVEMENT IN SOUTHWESTERN MISSOURI.

Our fellow citizens in the west and south-western part of the State, are becoming much interested on the subject of internal improvement, and it is natural and proper that a variety of plans should be suggested and discussed, to enable the public mind to decide on a system adapted to the geographical position of the State, and the wants and condition of its inhabitants. Indeed, when we contemplate a map of the State, we are forced to the conclusion that there is, perhaps, no other State in the Union, in which it would be so difficult to project a harmonious system of internal improvement; one combining and uniting the interests of all the parts, as in Missouri. Our territory is so extensive and so thinly inhabited in most parts, that any rail road improvement must be of great extent to be of much service. Possessing no great commercial points to unite by this mode of improvement, it may be well questioned whether any road can be projected in this State for many years to come, that would pay a reasonable profit to the stockholders.

None would rejoice more to see the progress of internal improvements; but we cannot encourage a hopeless or highly hazardous enterprise. This would injure, rather than promote the cause. These remarks are not intended to apply to the particular project of Mr. Singleton, but are designed to express our general views upon this subject.

By reference to the map, it will be perceived that the Missouri river and its tributaries, of themselves constitute a beautiful and very convenient system for the transportation of the products of all the central part of the State. The Gasconade and Osage on the south, and Grand and Chariton on the north, if improved, would make transportation by water convenient to almost every considerable district north of the Ozark range; while the White and St. Francis rivers, with their affluents, seem to be the natural outlets for the products of the south. Nor should we overlook the Merrimack and its tributaries, flowing from, perhaps, the richest mineral region in the United States, and falling into the Mississippi at a point about midway of our eastern boundary. If these streams are susceptible of improvement, and as far as we are advised, they can all be made navigable by dams, making slack water, and in many instances, by simply deepening their channels, they would, thus improved, go far towards relieving our people from the inconveniences under which they have heretofore labored; besides affording an almost illimitable amount of water power. It is true that all these streams are obstructed in winter by ice, but obstruction from this cause does not continue here, more than one half of the time that it does in all the canals and streams north of the Ohio river. And yet, these ice-bound regions do not seem to be the less prosperous on that account, for they are rapidly advancing in wealth, while at best, the south little more than sustains its position.

It is not our intention to offer any scheme of internal improvement, at present, but we will simply remark by the way, that the improvement of the navigation of our rivers appears to us as constituting the natural foundation for the superstructure of a more extended system. Let this be done to the extent of their capacity, and then the proper locations for rail roads and other artificial improvements, will be apparent; and these works, being projected with reference to the navigation of the rivers, the whole will constitute one entire and connected system.

Furthermore, if the great project of a railway to the Pacific should

ever be carried into effect, its location will doubtless have an important influence in giving direction and form, to our local system of internal improvement.

Mr. Singleton's communication was first published in the Independence Expositor. We copy from the Springfield Advertiser that part of the document only, which relates to the proposed route from Independence, Missouri, to the Mississippi river, by the way of White River—and his suggestions in regard to a route from Memphis to the Pacific:

INDEPENDENCE, June 20th, 1848.

To Major D. D. BERRY, *Springfield, Greene County, Mo.*

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For the better understanding of the subject it will be necessary to follow me upon the maps of Missouri and of Arkansas.

* * * * * * * * *

Now by carrying our improvements to the line between this State and Arkansas, we will unite that State and her means to accomplish a work which is not intended so much for the benefit of one as of both. Setting aside that selfish policy which was so characteristic of ancient governments—and adopting the more noble sentiments of an improved "day and generation," our motto should be—"*non nobus sed omnibus*," and we will commend ourselves to future generations for such universal principles, and a practice founded on such noble sentiments.

From an observation of the map we discern that the Missouri river from the mouth of the Kansas, divides the State into two nearly equal parts. Now by drawing a line through the counties of Mercer, Grundy, Linn, Chariton, Howard, Cooper, Morgan, Miller, Pulaski, Ashley and Oregon, we shall again sub-divide these into four parts, not equal however, because I have purposely placed this line so that the eastern divisions may contain a greater number of square miles, leaving to the western divisions a sufficiency to answer my purpose. Now, two steamers leaving Glasgow on the Missouri river—one bound up the river for Independence, the other for St. Louis, at a good stage of water, their arrivals would be coincident; hence if reshipments from both of those latter points were equal, freight at Glasgow would take either channel, as prejudice or local circumstances might control. If the water should be low, the communication to St. Louis would be difficult in consequence of the obstructions in the lower section of the river. Then freights would go up stream from that point and sometimes much below. The counties therefore west of that line, both on the river and extending to the northward would be more interested the nearer they are to the western point, say Independence—much more, therefore, those counties in the Platte country whose natural tendency is now to pass that point. It is well known that

from Glasgow to St. Joseph the river is better adapted for navigation than from that point down, hence at all the seasons of the year when free from ice, a certain class of boats could ply freely between those two points and if at an intermediate point a depot can be established so that at all times reshipments may be made for a southern market, the trade will naturally settle into that channel.

These reasons are obvious to all, and it is therefore desirable to seek an outlet from some intermediate point, situated first for the facility of reaching it by the most direct route from the south, and possessing advantages as a port for water communications. Here, again, we must seek our map of Arkansas: From observation, and a correct knowledge of the outlets of that State, White river presents at once, from its mouth to the mouth of Big Black, the natural channel for water communication. From that point nature, aided by art in the building of dams and locks, will give a slack water navigation for large steamers, for a distance of 125 miles, to the town of Forsyth in our own State, to the map of which we must now refer. From this town, by a rail road to the head of Sac river, at the town of Springfield, we communicate with the waters of the Missouri river; continuing this improvement down the valley of the Sac, which is most admirably adapted for such a work, we reach a very considerable point on the Osage river. Now cast your eye on the country between Springfield and Osceola—and taking Osceola as a centre, with a line of 100 miles, describe a circle within whose circumference are elements sufficient for an independent nation; land to support the inhabitants of Great Britain, minerals to keep her surplus population employed, and water power sufficient to drive one-half of her powerful machinery. All, all of which are now wasting upon the desert air, because of their isolation from a market. The trade of the Osage, by an improvement of that river, must all inevitably seek the southern route, instead of taking the long and circuitous one to St. Louis; and it is a remarkable fact that long after the Missouri is closed by ice, the Osage is open to Osceola, and from the nature of that stream, is rarely closed by ice; hence, except in the extreme cold weather, navigation would continue during the most of the year.

From Osceola we again start on our northward route, and crossing the point of country between the Osage and Grand rivers, we touch the stream near the mouth of Deep Water Creek, and following the valley of the Grand river to its head, we come on the main elevated plateau, or prairie level which divides the waters of the Osage from those which flow immediately into the Missouri. The route from this point is an easy one, in nearly a direct line to the town of Independence, and thence by her own rail road to the Missouri river.

In offering this route to the consideration of the people, I do so because I believe it to be the only practicable one for a new State like ours, to undertake its

construction. The distance from the Missouri river to the White river, is about two hundred miles. The cost of a rail road through such a country would be about six thousand dollars per mile—total, $1,200,000, and this would be all that our State would be required to do.

The White river, from Forsyth to Big Black, a distance of 124 miles, would cost not exceeding $400,000 to render it navigable for a large class of steamers, which will ply directly from Forsyth to New Orleans—the time required for which, will be about four days—thus placing the Missouri river at this point, within *five days* communication with New Orleans!—which now takes ten. Relative to the construction of the locks and dams on White river, no improvement in the country can offer such facilities. The rock always laying convenient, and an abundance of good timber ready for the construction of the work. By this improvement we shall unite the interests of the State of Arkansas as well as that of the citizens of New Orleans, for by it a new country and a new trade will be opened to that great mart.

White river, taking its rise in the northwest part of Arkansas, after entering Missouri and crossing its south boundary line four times, leaves the State and holds its course through the northern part of the State of Arkansas until it reaches the Big Black, when, by a southeast course, it flows towards the Mississippi and empties into that stream but a short distance above the Arkansas river. Watered by this stream are some of the finest lands in the State, while immediately on its banks are the most extensive, and the richest beds of ore—iron, copper, silver and gold, have all been discovered, and all except the gold, in considerable quantities. The beds of iron are more extensive, and as rich as those in Missouri. Fine marbles of various qualities and varieties are here ready for transportation. No stream in this whole valley possesses more facilities for water power than that portion of White river which will be improved by slack water. Here can be erected iron and copper works, and factories of every kind. And we have the satisfaction of knowing that in this work we shall unite the interests of all the counties in Arkansas bordering on that river.

Having at some length presented my views upon the subject of the improvements with reference to the interests which the two States of Missouri and Arkansas have in them, I will now proceed to present a more enlarged view, and one which I hope for its own sake will attract the attention of the nation at large, not looking, however, at the author, but at the great results which may flow from the prosecution of such a scheme.

Three great projectors have recently presented to the citizens of the United States three seperate and distinct routes from the Atlantic to the Pacific oceans—viz.: Whitney, Wilkes, and last, though not least, Lieut. Maury. Presuming

that all are well acquainted with the two former, I hasten to give a sketch of that proposed by the last author, M. F. Maury, Lieutenant United States Navy, than whom a more talented man in his profession there is not in all our country. After many arguments, cogent and solid, in favor of his "Circle Route," [which my limits do not permit me to quote, but which you may find in the Southern Literary Messenger and the May number of the Western Journal, of St. Louis,] he proceeds to shew that the nearest point on the Mississippi river, from China to the United States, via. Monterey on the Pacific, is Memphis, in Tennessee, and here I am certainly of his opinion; and, from the first perusal of his ably written arguments, concur in the selection of that city as the starting point from the Mississippi river on the great western route to the East Indies. Lieut. Maury proposes starting from the valley of the Arkansas, as a proper channel for a railroad across the Sierra to the head of the Gila, which empties into the Rio Colorado—and, by an improvement of that stream by dams and locks—pass down that stream to their junction at the head of the California Gulf. To this route I have but one serious objection, and from the general tenor of Lieut. Maury's letter, I judge that upon a more careful examination of the map of the country, he will perceive that I am correct.

From Memphis, a due west line will reach the Arkansas river on the old Cherokee trace, at the mouth of Point Remove creek. This, therefore, would be the most direct route to the Arkansas, but an impracticable one, in consequence of the nature of the country between the White river and the Arkansas. Therefore, from the White river at the mouth of Little Red, which is precisely in the direct line, a turn must be made up the valley of that stream, by which the summit or prairie level may be attained near the head of Cadron Creek, a small stream which empties into the Arkansas. By this the valley of Arkansas may be reached. Following that valley to the mouth of the Canadian river, the topography of the country from that point, demonstrates the only feasible route to the Sierra—which is, by the valley of that stream to its head, about forty-five miles east of Santa Fe. The objections to this route lie mainly at the head of the Canadian, which present themselves in the immense and deep canons through which that stream passes for more than fifty miles, some two thousand feet below the level of the country, the ascent to which is impracticable for a rail road from any point on that river. Cols. Long and Gregg describe the immense plain south of this stream, known as the "Staked Plains," as being sterile and barren beyond conception, of an altitude of more than 2,000 feet above the streams.

Driven from this route, we must return to Memphis and seek another against which no objections can be urged—but from the advantages which it naturally possesses above all others, entitle it to a proper consideration.

Monterey, on the Pacific, and the north bend of the White river, in the State of Missouri, are precisely on the same parallel of 36 deg. 38 min., Memphis being on the latitude of 25 deg. 38 min. A circle passing through Monterey and Memphis, must necessarily pass near Forsyth, and passing down White river, would make that stream its near neighbor in its whole distance to Big Black. From Memphis to Big Black, government has already prepared the road bed for a railroad; and from that point to Forsyth, should our contemplated work be completed, and from thence to the Missouri, we will have accomplished a large portion of the work to Santa Fe.

That a railroad to Santa Fe must go as far north as the valley of the Osage, I conceive no competent person acquainted with the nature of the country, will deny; hence, we must, from Osceola, follow the valley of the Osage to its head, which point is about fifty miles east of Council Grove, on the main trader's route from Independence to Santa Fe. From that point to Santa Fe a railroad can be constructed with more ease, and at less cost than in any section of the United States. The distance from Memphis to Santa Fe, by that route, will be as follows:

From Memphis to White river 85 miles, by railroad; from Big Black to Forsyth 125 miles, by slack water; from Forsyth to Osceola 115 miles, by railroad; from Osceola to Marie des Sygnes 50 miles, by slack water; from Marie des Sygnes, by Council Grove, to Santa Fe, 800 miles, by railroad—total, 1,175. Thus making the distance from Memphis to Santa Fe, 1,175 miles, by the valley of the Osage. Now, by the railroad route from Osceola to the Missouri river, at Independence—we shall connect the Mississippi, at Memphis, with the upper Missouri—taking advantage of the whole of that trade, will lengthen the general route only forty miles; but, by a change from the slack water of the Osage, to the more rapidly moving rail cars, we shall gain in time, which, on this lengthy route, is quite a desideratum.

Having planned a route, in this hasty manner, from Memphis to Santa Fe, or some more convenient point on the Rio Grande, from that point we must seek a more practicable route to the mountains, over which we must pass to gain the great valley which lies immediately west of the Rio Colorado. We know that a route may be obtained by following the Rio Grande from Santa Fe to Christobal, or lower down, to Diego, and from thence west to the head of the Gila, and by slack water render that stream navigable to the head of the Gulf of California, and thence to Monterey; but this route carries us too far out of the great circle route, as near which we have endeavored to keep, as the nature of the country would admit. I would, therefore, propose the following route, until a farther examination of that Terra n Cognita, or Great Basin, described by Lieut. Col. Fremont, which lies between the Colorado and the Sierra Nevada, east of Monterey, shall point out a more direct and practicable route, or force us to adopt the line of Gila. From Santa Fe, following up the valley of the Rio Grande, and ascending

the Rio Chama, we reach the summit of the Sierra Madre, where a branch of the Colorado, called the Jaquesella, takes its rise—down the valley of this stream to its junction with the Colorado—we obtain a practicable route. From the mouth of this stream, the Colorado may be easily rendered navigable for steamers of a large class to the head of the California Gulf. And from thence to San Diego, on the Pacific coast, a railroad may be constructed. And from the reports which we have of the country between San Diego and the head of the Rio San Buenaventura, we may readily obtain a practicable route to the bay of Monterey.

Having thus traced a route from Memphis, on the Mississippi river, to Monterey, on the Pacific, to carry out more at length the views suggested by Lieut. Maury, I have done so 1st, because from my intimate acquaintance with the topography of the country east of Santa Fe, I deemed it a duty I owe to the citizens of my own State, to point out a route in which they are so deeply interested; and, 2dly, I lay some claim to the originality of the idea of uniting the Atlantic with the Pacific ocean, by a chain of internal improvements. It was a subject of frequent conversation between Col. W. D. Gilpin (now commanding a battalion of volunteers on the Arkansas,) and myself, in the year 1838. The route proposed by Col. Gilpin, was to connect the head of the Missouri with the head of the Columbia, the same route afterwards proposed by Capt. Wilkes, and concurred in by Lieut. Col. Fremont. To this route my objections was always its indirectness, and the difficulties at the mouth of the Columbia. But, that a more southern route could be obtained, I never could ascertain from good authority, until, by reading the report of Gen. Kearny, I discovered that a passage could be obtained across the Sierra west of the Rio Grande, and thence down the Rio Gila; and that the only objection which could be urged against the route, would be the immense canons through which that stream passes on its way to join the Colorado. Hence, from recent reports of travelers, I have proposed the route from Santa Fe by the Rio Chama, and, by crossing the Sierra at its head, meet the Jaquesila, and through its valley and that of the Colorado, reach the waters of the Pacific. But little is known of the Colorado above the mouth of the Gila; hence, we have no certainty that it would benefit us, or itself be an aid to the general route; my own impression, however, is, that the route would be much improved by taking it down the valley of that stream, and that it would open to us a new country, which, from its situation, may be one of the most delightful for climate, soil and productions.

In conclusion, I would now suggest that a convention should be held at Springfield, on the fourth Monday in October, at which should be invited delegates from all the counties in the State, and in Arkansas, who are interested in this improvement.

I hope you will, therefore, proceed immediately to call a county meeting, to take the initiatory steps to effect this object. Respectfully, your ob't serv't,

WILLIAM R. SINGLETON.

ART. V.—THE RISE, PROGRESS AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

ARCHITECTURE—Concluded.

The cathedrals of Milan, in Italy, Brussels, in Belgium, Notre-Dame, in Paris, and others throughout the continent of Europe; York-Minster, Litchfield, Canterbury and Westminster, in England, are the most renowned structures in the gothic style of architecture in existence. Many more could be adduced, but their names would only serve to lengthen out this paper to no valuable purpose. I shall only speak of this last named Abbey and its accompanying Chapel, built by Henry the VII.*

"It was a noble idea," says Petit, in his remarks on church architecture, "to dedicate to the service of the infinite Creator, a temple, apparently indefinite in its extent, through which the eye might range without discerning the limit or measure; and the skill with which this idea was worked out meets with no parallel in the best days of classical art."

My first visit to the venerable Abbey of Westminster, is too indelibly engraven on my memory, ever to be erased. I entered its sacred precincts by Poet's Corner, and found myself surrounded with the monuments of Chaucer, Spenser, Shakspeare, Ben Jonson, Addison, Pope, Dryden, Goldsmith, and others, whose names belong to fame. Instantly I felt the influence of the hallowed resting place of genius. I was hushed to silence almost as great as that of the marble effigies which surrounded me. Lightly and reverently I walked through the fane, for the mouldering dust beneath my feet once glowed with the celestial spark

"That wak'd to exstacy the living lyre."

* * * * * *

"The storied urn and animated bust,"

spoke feelingly to my heart, a silent, but expressive eloquence, and

"Altho' no real voice or sound,"

came from the sculptured features of the mighty dead, they held communion with each other, in deep and impressive language. On every hand I was surrounded by the marble forms of those whose genius and talents made glorious and tranquil the pathway of existence. Whose virtues ennobled their various walks through life, incite the present race to follow their example, and for ages yet to come will serve as beacons to future generations to run the same race, and win for themselves the same undying renown.

I could scarcely withdraw from this consecrated spot, to view the other parts of the building, crowded as they are with the tombs of kings, and conquerors, and priests, and statesmen. The trophies of many a brave warrior who fought in Palestine hung in damp decay o'er the remnants of mortality, telling the sad

*The Lady Chapel of Westminster Abbey, built by Henry VII, to receive his tomb. It has been said the number of statues, within and without this Chapel, amounted to three thousand. Many of these may have been destroyed—even at this day the number is very great.

tale of earthly grandeur, and the nothingness of life. Those who on earth war'd with each other, now slept in repose, side by side. I could not help feeling the power of that great leveler, Death, upon contemplating the graves of Pitt and Fox. Their ashes slept quietly in close proximity, unconscious of jarring elements of party strife, of triumph and defeat, and I turned from the sight of their last cold bed, if not a better, at least, a more reflective being.

In this mood I ascended to a small chapel immediately behind the chancel, and there beheld the sword, helmet and shield of Edward, the Black Prince, and the curiously carved oak chair, in which the sovereigns of England are crowned. Beneath the seat is the famous stone, brought from Scone, in Scotland, which, according to tradition, was once the pillow on which the patriarch Jacob rested his head, when in a vision he saw angels ascending and descending on a ladder that reached from earth to Heaven.

But that which interested me still more, was the architectural splendor of Henry the Seventh's chapel. On reaching the east end of the Abbey, I ascended a flight of black, marble steps, beneath a deep, dark, and low gothic arch, to gates of bronze, exquisitely wrought in the most florid gothic ornaments,† through which I beheld the main body of the chapel. A thin, bluish haze floated within its hallowed walls, adding an indescribable charm to the subdued and partially admitted light of day, as it streamed through the elaborately stained glass windows of this magnificent temple. A solemn stillness reigned throughout the whole building—an awe-inspiring—a commanding silence, which impressed me with feelings which I never before experienced. I gazed in silent admiration at this superb fabric. Its clustered columns supporting a roof of the most exquisite tracery, from which descended elaborately wrought pendants, like colossal stalactites, gave it an air of enchantment far beyond the powers of description. The whole interior of this chapel is of cut stone, without any coating of cement or plaster, and so finely finished its minutest details, that the visiter is at a loss which most to admire—the genius which planned, or the skill which executed it. So apparently light and airy does the whole seem to the spectator, that you fancy yourself realizing the fairy creations of some eastern story-teller, rather than looking upon a substantial building of stone and mortar.

In the east end is the highly finished and minutely wrought bronze altar tomb of its founder having his own effigy, and that of his queen, reposing on it,‡ curiously and beautifully executed. The whole tomb is surrounded with a screen of gothic tracery in the same material.

†These gates are what is termed open work, which allows the visiter to see the interior before he enters.

‡"The architecture of the tomb has a mixture of Roman arches and decoration very different from the arches of the chapel, which are all pointed; the figures of the tomb have a better proportion and drawing, in the naked, than those of the chapel; but the figures of the chapel are very superior in natural simplicity and grandeur of character and drapery."—[Flaxman's Lectures on Sculpture, page 24 London, 1829. The sculptor of this monument was Torrigiano.

In one of the side aisles is the marble effigy of Queen Elizabeth, and in the other that of her beautiful but unfortunate victim, Mary of Scots.

Who can look upon the tombs of these sister Queens, without thinking of the beauty, accomplishments, and loveliness of poor Mary—without giving utterance to a deep felt sigh for her miseries and tragic death, or, not feel respect for the talents, admiration for the greatness, and pity and contempt for the vanity, selfishness and cruelty of her oppressor, Elizabeth. A few brief years rolled on in the trackless course, and the oppressor followed the oppressed to the last resting place of mortality. They are now at peace. Let charity throw the cold chain of silence o'er their memories, and blot out the faults of the one and the foibles of the other, for their glittering crowns could not save them from the frailties of the human race.

In the east end of the left aisle, is a monument to the infants who were murdered in the tower by order of Richard the Third, and, if I mistake not, their bodies rest beneath.

In contemplating this noble triumph of gothic architecture, the beholder is impressed with a sense of self-annihilation, and a degree of deep reverence waits upon his footsteps as he moves along its tesselated pavement. He is lost in amazement at the immensity of skill and ingenuity which he sees around him. It becomes engraven on his memory, nor time, nor space can blot it out, for, to remember it forever, he has to stand but once beneath its lofty vault.

There is no style of architecture so befitting a house dedicated to the solemn worship of Almighty God, as the gothic, for it admits of a variety of ornaments, nnd when of an appropriate character, cannot fail of producing the happiest effect on our devotional feelings. But of all ornaments, the most appropriate is the great symbol of our faith. This was adopted by the early christians simply to distinguish them from the surrounding heathen, who despised the christian religion because of the sufferings and ignominious death of our Saviour. In order to show how little such contumelies and coutempt prevailed with them, the Fathers adopted the sign of the cross in preference to all others, as an outward mark, whereby they could more easily be distinguished. It is, therefore, says the author of Anglican Church Architecture. "of all decorations the most appropriate that can be introduced in ecclesiastical architecture, and like 'a guardian crest,' ought to be placed on the summit of every structure that is dedtcated to the solemn services of the church.

"And we will not conceal the precious cross
Like men ashamed. The sun with its first smile
Shall greet that symbol crowning the low pile,
And the fresh air 'of incense breathing morn,'
Shall wooingly embrace it; and green moss
Creep round its arms through centuries unborn."

Gladstone remarks, in his Church Principles: "It has been observed as a cir-

cumstance full of meaning, that no man knows the names of the architects of our cathedrals. They left no record of their names upon the fabrics, as if they would have nothing there that would suggest any other idea than the glory of that God, to whom the edifices were devoted for perpetual and solemn worship; nothing to mingle a meaner association with the profound sense of His presence; or, as if at the joy of having built Him a house, there was no want left unfulfilled—no room for the question whether it is good for man to live in posthumous renown."

Who can read the glowing works of the immortal bard of Abbotsford, without realizing the halls and castles of the feudal chieftains of the middle ages? Whose pen can describe the rich tracery of the gothic so well as Scott, or whose truthfulness lead you to a view of the solemn grandeur of churches, the sombre gloom of monasteries, or the massive strength of donjons dark and deep, than this Wizard of the North? All the poetry and romance of former times impregnate the atmosphere which surrounds the graphic delineations of his pen. We become actually familiar with the imposing stateliness of civil architecture—we revel in the halls of princes, and are subdued by the softened light of mid-day, as it streams in many colors through the stained glass windows upon the marble pavement of a cathedral.

This noble art lends itself to our comforts, our protection, our elegances and luxuries, and to our devotions when bowed in humble supplication before the throne of the Supreme, Grand Architect of the Universe, surrounding us with an atmosphere of reverence which should ever accompany the building dedicated to the solemn worship of the Most High.

Like its sisters, it indeed ranks the nations where it is cultivated high in the scale of civilization, and is truly a good criterion by which to judge of the refinement of a people; but with all its vast powers, its grandeur and magnificence, it must obey the immutable law, and sooner or later sink to decay.

> "The cloud cap'd towers, the gorgeous palaces,
> The solemn temple—yea, this great globe itself,
> Must be dissolved; and like the baseless,
> Unsubstantial fabric of a vision
> Leave not a wreck behind."

Next subject, Sculpture.

ART. VI.—HEMP.

CANNABIS. Class and Order, *diœcia pentandria*, Nat. Ord. *Scabridæ*, Linn. *Urticæ*, Jus.

Gen. Ch. Male. *Cal.* perianth five cleft; segment oblong, accuminately obtuse, concave. *Cor.* none. *Stam.* filaments five, capillary, very short; anthers oblong, four-cornered. Female. *Cal.* perianth one-leafed, oblong, acuminate, opening longitudinally on one side, permanent. *Cor.* none. *Pist.* germ very small; styles two,

very long; stigmas acute. *Peric.* the permanent calyx closely covering the seed. *Seed* not globular, depressed, two-valved.

Ess. Ch. Male. Calyx five cleft; Corolla none. Female: calyx one-leafed, entire, opening on one side; corolla none; styles two; nut two-valved, within the closed calyx.

Sp. 1 .*Cannabis Sativa.* Linn. HEMP. (Ger. Hanf; Du. *Hennip, Kennip;* Da. *Hamp.*; Sw. *Hampa;* Fr. Chanvre; It. Canape; Sp. *Canamo;* Rus. *Canapli, Kanopel*; Pol. *Konope,*) Leaves opposite. *Root* annual. *Stem* upright, obscurely quadrangular, a little hairy. *Leaves* petioled, digitate; leaflets five or seven, lanceolate, accuminate, serrated, outer ones the smallest. *Male flowers* in small loose racemes, or spikes at the ends of the stems and branches. *Female flowers,* axilliary, solitary, very small. Both kinds sometimes occur on the same plant, but always one of them very few in proportion to the other.

The history of hemp, like that of most of the cultivated plants of the old world, is obscure.

It is said by Herodotus, to be a native of Scythia. According to Linnæus, it grows wild in the East Indies. Thunberg says it grows in Japan. Gmelin found it in Tartary, and it is stated in Rees' Cyclopædia, that Father Hennepin found it among the Illinois of North America; while others have supposed hemp to be a native of Persia. Were these accounts all true, they would give to hemp a wider range of climate than that of almost any other plant. But we conclude, that in these and other historical facts in relation to hemp, the *Cannabis Sativa* has been confounded with the *Cannabis Indica,* the Dakka or Bangua of the Indians. This is a plant with a taller stem; leaves alternate; stem nearly cylindrical, smaller, more branched, and harder than that of the preceding species. Leaflets linear-lanceolate, very sharp pointed; in the male plant five or seven, in the female commonly but three, on a petiole; near the top entirely simple; a native of the East Indies. Its hard stem and thin bark render it incapable of being wrought into filaments and spun, like common hemp. It has a strong smell, a little like that of tobacco. The Indians make of its bark, and the expressed juice of the leaves and seeds, a liquor which has an intoxicating quality; and, if they wish to produce a stronger effect, they either chew or smoke the dried leaves, mingled with tobacco.

A little nutmeg, cloves, camphor, and opium, mixed with its juice, on the composition which the Indians call majeh, and which, according to Clusius, is the same as the malach of the Turks.* Milburn, in his Oriental Commerce, says: "Hemp has been cultivated in Bengal, from the remotest antiquity; but not as in Europe, for the purpose of being manufactured into cloth and cordage. In the Hindoo economy, it serves as a substitute for malt; a favorite intoxicating liquor called Banga, being produced from it. This, also, is the use to which it is applied in Egypt." Here the term "HEMP" is used, without taking notice of the species; but it is conclusive, from what we have said

* Rees' Cyclopædia, title Cannabis.

before, that the hemp spoken of by Milburn is the *Cannabis Indica* or *Bangua.* Rees says: "It does not appear that the ancients were acquainted with the use of hemp, in respect to the thread it affords. Pliny, who speaks of that plant in his Natural History, lib. xx, chap. 23, says not a word of this; contenting himself with extolling the virtues of its stem, leaves, and root. In effect, what some writers of the Roman antiquities remark, viz: that the hemp necessary for the use of war, was all stored up in two cities of the western empire, viz: at Ravenna and Vienne, under the direction of two procurators, called *procuratores linificii*, must be understood of linum or flax."

From comparing these accounts, we conclude that the *Cannabis Sativa*, the hemp of commerce, was unknown to the ancients; or, if the plant was known, it was used in Europe and Asia Minor, for the same purposes as was the *Cannabis Indica* in the East Indies. Nor have we any certain account that it has been produced in the East Indies, even to the present day, for any purpose whatever. And hence we conclude that it is a native of, perhaps, the more northern parts of the temperate zone.

The article of commerce known as INDIAN or SUNN hemp, is the fibre of the *Crotolaria juncæ*, a small plant, with a stem about three feet high, and, in some respects, resembles the rush. "It is grown in various parts of Hindostan. The strongest, whitest, and most durable species at Comercolly. During those periods of the late war, when the intercourse with the Baltic was interrupted, and hemp bore an enormous price, large quantities of *Sunn* were imported 'into England;' but, the fibre being comparatively weak, the article was not found to answer, and the importation has since been discontinued.'"* In the report of the Secretary of the Treasury, he places Manilla and Sunn hemp, jute, Sisal grass, coir, &c., under one head; and hence we have no means at hand, of ascertaining to what extent the article is used in this country.

MANILLA HEMP is made of the fibrous bark or epidermis of the wild banana, (*musa textilis*,) a species which grows in great abundance in some of the most northerly of the Spice Islands. In the great Island Mindanao, one of the Philippines, it is said to fill extensive forests.

COIR is the fibre from the husks of the cocoa nut, separated by steeping it in water, spun into yarn, and manufactured into cordage; this is esteemed as one of the strongest of all the vegetable fibres, and constitutes an important article of commerce. According to McCulloch, Ceylon alone exports annually 3,000,000 lbs. of coir; a large quantity is also exported from the Maldive Islands.

Russia produces about as much hemp as the balance of the world. We have met with no statistics showing the entire amount of production in that country; but, in a published letter from the Hon. C. S. Morehead, a member of Congress from Kentucky, he says: "The entire product of hemp in Russia, has been differently estimated. Perhaps that which places it at two hundred and forty millions

* Milburn's Oriental Commerce.

of pounds, is not far wrong. One-half of this amount is exported either in its crude or manufactured state, and the home value of which, some years ago, was estimated at $10,000,000.

According to a table showing the import and export trade of Russia, published in the Merchants' Magazine for April, 1848, the exports of manufactured hemp, for three years, is thus stated: in 1844, 2,970,636 pads; in 1845, 2,841,718 do.; and in 1846, 2,695,652 do.; making an annual average of 2,836,002 pads, (which we suppose to mean the same as poods;) estimating the pad, or pood, at 36 lbs., the average annual export for these three years is equal to 35,575 tons, or 102,-096,072 lbs. The product of France is put down at about one hundred millions of pounds. This we think too high an estimate, for she imports from Italy and Russia from seven to eight millions annually, to supply the wants of the country. Hemp is grown extensively in Italy, but we have met with no statistics showing the quantity produced there.

According to the estimate made by the Commissioner of Patents, the hemp crop of the United States, for the year 1847, is set down at 27,750 tons—equal to 194,-062 bales, at 320 lbs. each, or 62,160,000 lbs; this he divides among the hemp producing States, as follows: to Kentucky, 15,000 tons; Missouri, 10,000 do.; Tennessee, 1,000 do.; Ohio, 600 do.; Illinois, 600 do., and Indiana 550 do This estimate is, in our opinion, too large by several thousand tons. By reference to the quantity received at St. Louis for five years, we find the average annual receipts to be 7,071 tons, allowing 320 lbs. to the bale. The receipts of each year are as follows: 37,553 bales in 1843; 62,732 do. in 1844; 30,985 do. in 1845; 34,738 do. in 1846, and 81,505 in 1847—being an average of 49,506 bales annually.

The receipts at St. Louis from the first of January to first of July, for three years, as reported by the Missouri Republican, are as follows: In 1846, 21,288 bales; in 1847, 59,647, and in 1848, 24,831—thus showing that the quantity received for the first six months in the present year, is only 3,549 bales more than in the year 1846, when the price was quite low compared to the present; and 34,816 bales less than was received in the same period last year. In 1846 nearly two-thirds of the whole quantity was received in the first six months, and last year more than three fourths of the import for the year was received before the first of July; and this year it will require that as much should be received, (lacking a few bales,) in the last as in the first six months, to bring the quantity up to the average of the last five years, say 49,506 bales. But when we consider that the price has been fair, and the navigation favorable during the most of the season, we conclude that, although the quantity received since the first of July has been comparatively large, yet the receipts for the year will fall below the average, and will, in all probability, not exceed the average of the last five years, and may fall below it, and that we shall not be far from the truth in setting down the crop of Missouri for 1847 at 7,000 tons or 50,000 bales; and if we accept the

report of the Commissioner of Patents as true in all other respects, yet his over statement for Missouri will reduce the quantity of hemp produced in 1847, to less than 25,000 tons. This, however, is quite equal to the home demand, and the amount shipped eastward by the three principal routes last year. There was received at New Orleans in 1847, 60,238 bales; shipped eastward from Pittsburgh, 3,311; from Buffalo, by the New York Canal, 1,062, and from Oswego, 781—in all, 65,392 bales, making 9,342 tons, or 20,925,440 pounds. If we suppose the cotton crop to have been 2,000,000 bales, and that it requires fifteen pounds of bagging and rope to the bale, this will have required 13,393 tons, equal to 93,751 bales of 320 pounds each, or 30,000,000 pounds, making the eastern and southern demand last year 22,735 tons. If the demand at these points in 1848, should be equal to that of 1847, there would be only about 2,000 tons left for the consumption of the west; an amount which we imagine to be insufficient. And if the cotton crop of the present should be large, or should reach 2,200,000 bales, which may be considered an average, there must be a scarcity of hemp until the crop of 1848 comes to market, unless the stocks in the east, and in the hands of manufacturers in the west, remaining over from last year, are unusually large. These views are based mainly on the supposition that the estimate of the Commissioner of Patents, in regard to the crop of the Ohio Valley is correct. We incline to the opinion that his estimate for Kentucky is too high.

But it is not so much our purpose to speculate on the demand and supply of the present season, as to enquire into the prospects of enlarging the consumption, and the cause of the frequent and great fluctuations of price. We have looked carefully into the imports of both the raw and manufactured article, and have made the following table from the report of the Secretary of the Treasury for the year 1845, showing the amount of raw and manufactured hemp imported into the United States from 1830 to 1845, inclusive. A small portion of this was doubtless exported, but we have no means of ascertaining the amount at present. We have seen no statement of the quantity imported in 1836.

	Hemp. Cwt.	Value.	Manufactures of Hemp—Value.	Cotton Bagging.	Value.
1831,	51,909	$295,706	$988,153	207,906 yds.	$18,966
1832,	150,739	866,865	796,461	803,489	87,966
1833,	94,026	470,973	1,544,663	1,421,185	158,681
1834,	102,211	514,743	894,677	1,962,920	237,260
1835,	102,163	528,981	867,858	7,054,789	924,036
1836,	147,190	815,558	717,101	13,203,095	1,701,451
1837,	84,965	483,792	595,888	3,431,675	429,251
1838,	81,391	512,506	730,362	1,670,347	173,325
1839,	87,461	607,766	857,635	2,093,693	220,023
1840,	93,788	686,777	687,717	2,986,075	310,211
1841,	72,962	561,039	977,764	6,786,889	723,678
1842,	39,730	267,849	851,710	4,885,255	421,824

1843,	36,269	228,882	345,270	1,410,628	105,483
1844,	50,752	262,365	821,261	None reported.	
1845,	28,155	145,209	1,202,164	1,779,492	128,525

The following table shows the import of hemp, raw and manufactured—Manilla, jute, coir, cordilla or tow, sisal grass, sail duck, hempen goods, cordage cables, twine, cotton bagging, gunny bags, &c., for the year ending 30th June 1847, taken from the report of the Secretary of the Treasury:

	Imported.	Exported.	Value retained for consumption.
Hemp manufactured, tons,	476	8	$65,220
Cordilla or tow of hemp and flax,	$37,010		37,010
Sail duck, value,	205,593	$12,648	192,845
Hempen goods, value,	468,892	35,505	433,387
Cordage, tarred and untarred, cables, twine, &c., value,	97,191	53,290	43,901
Cotton bagging, value,	10,856	10,856	
Gunny bags, value	49,832	7,158	42,674
Total,			$1,002,585

From the foregoing table it will be seen that the quantity of foreign hemp retained for consumption, in 1847, including sail duck, hempen goods, cordage, gunny bags, &c., amount to $1,002,585. Only $102,230 of this amount consists of unmanufactured hemp, including cordilla or tow, valued at $37,010, and if we suppose one-half of the value of the manufactured articles to consist in the raw material, this will show the quantity of the foreign material consumed, to be of the value of $550,000, equal to about 5,500 tons at present prices, or say one-fifth of the crop.

Thus, it will be seen, that if we should furnish raw material to the full extent of the home demand, and exclude entirely the foreign material, it would only require an increase of about 20 per cent. over the crop of 1847. It is not probable, however, that we shall for a long time exclude entirely the Manilla and some of the other sorts of East India hemp, as limited quantities of these will continue to be required for particular purposes. But with proper attention to the preparation of hemp for market, with a modification of the present tariff, we shall doubtless in a few years cease to import more than perhaps from one to two hundred thousand dollars worth of hemp, including both the raw and manufactured articles. By the act of 1846, regulating the tariff, a duty of 30 per cent. is imposed on raw hemp; this we esteem a liberal protection. But, when manufactured, it is only subject to a duty of 20 per cent. This operates in the nature of a bounty to the foreign manufacturer, and it is evident that if this law continues, other countries will cease to send us the raw material, and instead thereof send us the fabric; and this will lessen the protection to the grower, and tend to the encouragement of the foreign manufacturer, at the expense of our own. To one un-

acquainted with the difficulty of adjusting the details of a tariff, this would appear like a *blunder;* but, whatever may have been the cause, it invalues an absurdity in our history of legislation, and we trust that that part of the country, at least, which is interested in hemp growing, will ask for an amendment.

It does not appear, by the report of the Secretary of the Treasury, that we exported any hemp in the year ending on the 30th June, 1847; and unless we can compete successfully with Russia and Italy, in the foreign markets, it will be perceived that the prospect for an increased demand at home is limited mainly by the increase of cotton growing, and of our national and civil marine; for we know of no new purposes in the economy of the country, to which the use of hemp is likely to be applied, and we conclude that a gradual increase in the production of five per cent. per annum, will be sufficient to meet the demand

But, could we make such improvements in preparing our hemp for use, as would bring it into favor in foreign markets, we might calculate upon doubling our crop. By reference to McCulloch's Universal Geography, we find that the quantity of hemp retained in Great Britain, for consumption, in 1837, was 651,-613 cwt.; and for 1838, 692,495 cwt.—equal to an average of 34,625 tons for these two years. In the Patent Office report for 1845, it is stated that the quantity of hemp imported into Great Britain for the ten months ending on the 5th November, 1845, and for the same time in 1843 and '44, was as follows, viz: for 1843, 511,557 cwt.; in 1844, 755,569 cwt.; and 1845, 700,034 cwt.—being an average of 31,117 tons in each period of ten months. From this we infer that there has been but little variation in the quantity consumed in Great Britain since 1838. France imports about 8,000 tons. These two countries alone import nearly double the quantity produced in the United States in 1847; and if we could come in for an equal share of this trade, and divide it with Russia and Italy, we might then double our crop; but, if this can be effected at all, it must be done by slow degrees, for it always requires a long time to drive an established customer out of market; and it may be well questioned, whether we can ever come in successful competition with the low price of labor in Russia, without improvements that will greatly diminish the cost of preparing hemp for market. In one particular, however, if we rightly comprehend McCulloch's table of charges on the importation of hemp, we possess an advantage over the Russian grower, whose article ia charged with customs and dues on exportation, amounting to £4 13s. 8d.—about $20 on the ton—valued at £40 but, if these charges still remain, the Government would, doubtless, abolish them, if this should become necessary to enable the producers to compete with us.

If we suppose a crop of 25,000 tons to be a fair supply for our present wants, and we set down the yield at 600 lbs. per acre, this requires the cultivation of 93,333 acres in hemp, and we should esteem an increase of five per cent., or an

addition of five thousand acres, annually, to the quantity sown, to be quite sufficient to keep pace with the increasing demand. Hence, it will be seen that, if our facts and deductions are true, or nearly so, there is little encouragement for extending the growth of hemp in the United States; and the growers will act unwisely, if they are tempted by remunerating prices, arising from accidental causes, to increase, materially, the quantity of land appropriated to its cultivation.

THE MEXICAN TREATY.

[CONCLUDED FROM PAGE 456.]

ARTICLE XII.

In consideration of the extension required by the boundaries of the United States, as defined in the fifth article of the present treaty, the Government of the United States engages to pay to that of the Mexican republic the sum of fifteen millions of dollars.

Immediately after this treaty shall have been duly ratified by the Government of the Mexican republic the sum of three millions of dollars shall be paid to the said Government by that of the United States, at the city of Mexico, in the gold or silver coin of Mexico. The remaining twelve millions of dollars shall be paid at the same place and in the same coin, in annual instalments of three millions of dollars each, together with interest on the same, at the rate of six per centum per annum. This interest shall begin to run upon the whole sum of twelve millions from the day of the ratification of the present treaty by the Mexican Government, and the first of the instalments shall be paid at the expiration of one year from the same day. Together with each annual instalment, as it falls due, the whole interest accruing on such instalment from the beginning shall also be paid.

ARTICLE XIII.

The United States engage, moreover, to assume and pay to the claimants all the amounts now due them, and those hereafter to become due, by reason of the claims already liquidated and decided against the Mexican republic, under the conventions between the two republics severally concluded on the eleventh day of April eighteen hundred and thirty-nine, and on the thirtieth day of January, eighteen hundred and forty-three, so that the Mexican republic shall be absolutely exempt for the future, from all expenses whatever on account of the said claims.

ARTICLE XIV.

The United States do furthermore discharge the Mexican republic from all claims of citizens of the United States not heretofore decided against the Mexican government, which may have arisen previously to the date of the signature of this treaty; which discharge shall be final and perpetual, whether the said claims

be rejected or be allowed by the board of commissioners provided for in the following article, and whatever shall be the total amount of those allowed.

ARTICLE XV.

The United States, exonerating Mexico from all demands on account of the claims of their citizens mentioned in the preceding article, and considering them entirely and forever cancelled whatever their amount be, undertake to make satisfaction for the same, to an amount not exceeding three and one quarter millions of dollars. To ascertain the validity and amount of those claims, a board of commissioners shall be established by the government of the United States, whose awards shall be final and conclusive; provided, that in deciding upon the validity of each claim, the board shall be guided and governed by the principles and rules of decision prescribed by the first and fifth articles of the unratfied convention, concluded at the city of Mexico on the twentieth day of November, one thousand eight hundred and forty-three; and in no case shall an award be made in favor of any claim not embraced by these principles and rules.

If, in the opinion of the said board of commissioners, or of the claimants, any books, records, or documents, in the possession or power of the government of the Mexican republic, shall be deemed necessary to the just decision of any claim, the commissioners, or the claimants through them, shall within such period as Congress may designate, make an application in writing for the same, addressed to the Mexican Minister for Foreign Affairs, to be transmitted by the Secretary of State of the United States; and the Mexican government engages, at the earliest possible moment after the receipt of such demand, to cause any of the books, records, or documents, so specified, which shall be in their possession or power, (or authenticated copies or extracts of the same,) to be transmitted to the said Secretary of State, who shall immediately deliver them over to the said board of commissioners: *Provided*, That no such application shall be made by it, or at the instance of, any claimant, until the facts which it is expected to prove by such books, records, or documents, shall have been stated under oath or affirmation.

ARTICLE XVI.

Each of the contracting parties reserves to itself the entire right to fortify whatever point within its territory it may judge proper so to fortify for its security.

ARTICLE XVII.

The treaty of amity, commerce and navigation, concluded at the city of Mexico on the fifth day of April, A. D., 1831, between the United States of America and the United Mexican States, except the additional article, and except so far as the stipulations of said treaty may be incompatible with any stipulation contained in the present treaty, is hereby revived for the period of eight years from the day of the exchange of ratifications of this treaty, with the same force and virtue as if

incorporated therein; it being understood that each of the contracting parties reserves to itself the right, at any time after the said period of eight years shall have expired, to terminate the same by giving one year's notice of such intention to the other party.

ARTICLE XVIII.

All supplies whatever for troops of the United States in Mexico, arriving at ports in the occupation of such troops previous to the final evacuation thereof, although subsequently to the restoration of the custom-houses at such ports, shall be entirely exempt from duties and charges of any kind; the government of the United States hereby engaging and pledging its faith to establish, and vigilantly to enforce, all possible guards for securing the revenue of Mexico, by preventing the importation, under cover of this stipnlation, of any articles other than such, both in kind and in quality, as shall really be wanted for the use and consumption of the forces of the United States during the time they may remain tn Mexico. To this end it shall be the duty of all officers and agents of the United States to denounce to the Mexican authorities at the respective ports any attempts at a fraudulent abuse of this stipulation, which they may know of, or may have reason to suspect, and to give to such authorities all the aid in their power with regard thereto; and every such attempt, when duly proven and established by sentence of a competent tribunal, shall be punished by the confiscation of the property so attempted to be fraudulently introduced.

ARTICLE XIX.

With respect to all merchandize, effects, and property whatsoever, imported into ports of Mexico whilst in the occupation of the forces of the United States, whether by citizens of either republic, or by citizens or subjects of any neutral nation, the following rules shall be observed:

1. All such merchandize, effects and property, if imported previously to the restoration of the custom-houses to the Mexican authorities as stipulated for in the third article of this treaty, shall be exempt from confiscation, although the importation of the same be prohibited by the Mexican tariff.

2. The same perfect exemption shall be enjoyed by all such merchandize, effects and property, imported subsequently to the restoration of the custom-houses, and previously to the sixty days fixed in the following article for the coming into force of the Mexican tariff at such ports respectively; the said merchandize, effects, and property being,

however, at the time of their importation, subject to the payment of duties, as provided for in the said following article.

3. All merchandise, effects, and property, described in the two rules foregoing, shall, during their continuance at the place of importation, and upon their leaving such place for the interior, be exempt from all duty, tax or impost of every kind, under whatsoever title or denomination. Nor shall they be there subjected to any charge, whatsoever, upon the sale thereof.

4. All merchandise, effects, and property, described in the first and secend rules, which shall have been removed to any place in the interior, whilst such place was in the occupation of the forces of the United States, shall, during their continuance therein, be exempt from all tax upon the sale or consumption thereof, and from every kind of impost or contribution, under whatsoever title or denomination.

5. But, if any merchandise, effects, or property, described in the first and second rules, shall be removed to any place not occupied at the time by the forces of the United States, they shall, upon their introduction into such place, or upon their sale or consumption there, be subject to the same duties which, under the Mexican laws, they would be required to pay in such cases if they had been imported in time of peace, through the maratime custom houses, and had there paid the duties conformably with the Mexican tariff.

6. The owners of all merchandise, effects, or property, described in the first and second rules, and existing in any port of Mexico, shall have the right to reship the same, exempt from all tax, impost, or contribution whatever.

With respect to the metals, or other property, exported from any Mexican port whilst in the occupation of the forces of the United States, and previously to the restoration of the custom-house at such port, no person shall be required by the Mexican authorities, whether general or State, to pay any tax, duty or contribution upon any such exportation, or in any manner to account for the same to the said authorities.

ARTICLE XX.

Through considerations for the interests of commerce generally, it is agreed, that if less than sixty days should elapse between the date

of the signature of this treaty and the restoration of the custom-houses, conformably with the stipulation in the third article, in such case, all merchandize, effects, and property, whatsoever, arriving at the Mexican ports after the restoration of the said custom-houses, and previously to the expiration of sixty days after the day of the signature of this treaty, shall be admitted to entry; and no other duties shall be levied thereon than the duties established by the tariff found in force at such custom-houses at the time of the restoration of the same. And to all such merchandize, effects, and property, the rules established by the preceding article shall apply.

ARTICLE XXI.

If unhappily any disagreement should hereafter arise between the two republics, whether with respect to the interpretation of any stipulation in this treaty, or with respect to any other particular concerning the political or commercial relations of the two nations, the said governments, in the name of those nations, do promise to each other that they will endeavor in the most sincere and earnest manner, to settle the differences so arising, and to preserve the state of peace and friendship in which the two countries are now placing themselves; using, for this end mutual representations and pacific negotiations. And if, by these means, they should not be able to come to an agreement, a resort shall not, on this account, be had to reprisals, aggression, or hostility of any kind, by the one republic against the other, until the government of that which deems itself aggrieved shall have mutually considered, in the spirit of peace and good neighborship, whether it would not be better that such difference should be settled by the arbitration of commissioners appointed on each side, or by that of a friendly nation. And should such course be proposed by either party, it shall be acceded to by the other, unless deemed by it altogether incompatible with the nature of the difference, or the circumstances of the case.

ARTICLE XXII.

If, (which is not to be expected, and which God forbid!) war should unhappily break out between the two republics, they do now, with a view to such calamity, solemnly pledge themselves to each other and to the world, to observe the following rules, absolutely, where the nature of the subject permits, and as closely as possible in all cases where such absolute observance shall be impossible:

1. The merchants of either republic, then residing in the other, shall

be allowed to remain twelve month, (for those dwelling in the interior,) and six months (for those dwelling at the seaports,) to collect their debts and settle their affairs; during which periods they shall enjoy the same protection, and be on the same footing, in all respects, as the citizens or subjects of the most friendly nations; and, at the expiration thereof, or at any time before, they shall have full liberty to depart, carrying off all their effects without molestation or hindrance; conforming therein to the same laws which the citizens or subjects of the most friendly nations are required to conform to. Upon the entrance of the armies of either nation into the territories of the other, women and children, ecclesiastics, scholars of every faculty, cultivators of the earth, merchants, artisans, manufacturers and fishermen, unarmed and inhabiting unfortified towns, villages, are places, and in general all persons whose occupations are for the common subsistence and benefit of mankind, shall be allowed to continue their respective employments unmolested in their persons. Nor shall their houses or goods be burnt or otherwise destroyed, nor their cattle taken, nor their fields wasted, by the armed force into whose power, by the events of war, they may happen to fall; but if the necessity arise to take any thing from them, for the use of such armed force, the same shall be paid for at an equitable price. All churches, hospitals, schools, colleges, libraries and other establishments for charitable and beneficent purposes, shall be respected, and all persons connected with the same protected in the discharge of their duties, and the pursuit of their vocations.

2. In order that the fate of prisoners of war may be alleviated, all such practices as those of sending them into distant, inclement, or unwholesome districts, or crowding them into close and noxious places, shall be studiously avoided. They shall not be confined in dungeons, prison-ships or prisons; nor be put in irons, or bound, or otherwise restrained in the use of their limbs. The officers shall enjoy liberty on their paroles, within convenient districts, and have comfortable quarters; and the common soldiers shall be disposed in cantonments, open and extensive enough for air and exercise, and lodged in barracks as roomy and good as are provided by the party in whose power they are, for its own troops. But if any officer shall break his parole by leaving the district so assigned him, or any other prisoner shall escape from the limits of his cantonment, after they shall have been designated to him, such individual, officer, or other prisoner, shall forfeit so much of

the benefit of this article as provides for his liberty on parole or in cantonment. And if any officer so breaking his parole, or any common soldier so escaping from the limits assigned him, shall afterwards be found in arms, previously to his being regularly exchanged, the person so offending shall be dealt with according to the established laws of war. The officers shall be daily furnished by the party in whose power they are, with as many rations, and of the same articles, as are allowed, either in kind or by commutation, to officers of equal rank in its own army; and all others shall be daily furnished with such ration as is allowed to a common soldier in its own service; the value of all which supplies shall, at the close of the war, or at periods to be agreed upon between the respective commanders, be paid by the other party, on a mutual adjustment of accounts for the subsistence of prisoners; and such accounts shall not be mingled with or set off against any others, nor the balance due on them withheld as a compensation or reprisal for any cause whatever, real or pretended. Each party shall be allowed to keep a commissary of prisoners, appointed by itself, with every cantonment of prisoners in possession of the other; which commissary shall see the prisoners as often as he pleases; shall be allowed to receive, exempt from all duties or taxes, and to distribute whatever comforts may be sent to them by their friends; and shall be free to transmit his reports in open letters to the party by whom he is employed.

And it is declared that neither the pretence that war dissolves all treaties, nor any other whatever, shall be considered as annulling or suspending the solemn covenant contained in this article. On the contrary, the state of war is precisely that for which it is provided, and during which its stipulations are to be as sacredly observed as the most acknowledged obligations under the law of nature or nations.

ARTICLE XXIII.

This treaty shall be ratified by the President of the United States of America, by and with the advice and consent of the Senate thereof; and by the President of the Mexican republic, with the previous approbation of its general Congress; and the ratification shall be exchanged in the city of Washington, or at the seat of government of Mexico, in four months from the date of the signature hereof, or sooner if practicable.

In faith whereof, we, the respective plenipotentiaries, have signed

this treaty of peace, friendship, limits, and settlement; and have hereunto affixed our seals respectively. Done in quintiplicate, at the city of Gaudaloupe Hidalgo, on the second day of February, in the year of our Lord one thousand eight hundred and forty-eight.

N. P. TRIST, [L. S.]
LUIS G. CUEVAS, [L. S.]
BERNARDO COUTO, [L. S.]
MIGL. ATRISTAIN, [L. S.]

COMMERCIAL STATISTICS.

VALUE OF DOMESTIC EXPORTS OF THE UNITED STATES TO EACH FOREIGN COUNTRY, FROM THE 1ST DAY OF JULY, 1846, TO THE 30TH DAY OF JUNE, 1847.

	ARTICLES NOT ENUMERATED.		TOTAL VALUE OF MERCHANDISE.		
Whither exported.	Manufactured.	Other.	In American vessels.	In foreign vessels.	To each country.
Russia,	$2,121	$20	$365,352	$260.980	$626,332
Prussia,	530	....	....	182 259	182,259
Sweden and Norway,	127	50	....	391,847	391,847
Swedish West Indies,	662	22	110,062	....	110.062
Denmark,	76	....	14.577	184.375	198,952
Danish West Indies,	9,111	4 783	733.472	102 300	836,672
Hanse Towns,	27,027	15,711	841,567	3,226,846	4,068 413
Hanover,	....	....	....	6.469	6,469
Holland,	5,293	5,352	998 477	886,921	1,885,398
Dutch East Indies,	131	980	91 902	....	91,902
Dutch West Indies,	725	784	216 329	885	217,214
Dutch Guiana,	93	151	43 840	....	43,840
Belgium	1,753	5.054	1,902.042	972,325	2,874,367
England,	299,152	357 183	40 092,630	30 131,147	70,223,777
Scotland,	15,390	66.722	2 375 631	1.269 829	3,645,460
Ireland,	3,025	26 246	6,710 511	5,687,187	12,397.698
Gibraltar,	120	265	303 883	61,477	365.360
Malta,	754	....	25 096	....	25,096
British East Indies,	5 609	37,371	237,783	....	237,783
Cape of Good Hope,	2,469	452	106 172	....	106.172
Mauritius,	634	748	36.275	....	36,275
Australia,	483	....	33.289	....	33.289
Honduras,	4,075	1.895	259 828	1,570	261,398
British Guiana,	3,686	7,610	560,390	61.513	621.903
British West Indies,	39.374	74.640	3,258.030	715 222	3.973.252
British American Colonies,	450 664	317,738	2.182 370	3,637,207	5,819.667
France on the Atlantic,	32,998	38,648	15,777.910	1,642,475	17,420.385
Do. Mediterranean,	4,433	1,691	929,695	242.451	1,172,146
French African ports,	....	33	....	5,491	5.491
Bourbon,	....	4,177	19.753	32 804	52.557
French West Indies,	1,040	11,726	500.085	69,041	569,126
French Guiana,	409	932	58 287	....	58.287
Spain on the Atlantic,	....	....	446 544	324.204	770,748
Do. Mediterranean,	....	....	166,926	1,021,414	1,188,340
Teneriffe and other Canaries,	....	....	15.148	....	15,148
Manilla and Philippine Isles,	996	2,661	32,480	....	32,480
Cuba,	62.471	52,3[illegible]3	5,847.836	157,781	6,005,617
Other Spanish West Indies,	2,493	8,710	818 019	17,060	825.079
Portugal,	....	....	36,165	20,728	56,893
Madeira,	101	577	76 110	28,921	105,031
Fayal and other Azores,	....	....	9 466	....	9,466
Cape de Verd Islands,	3,101	814	70.303	781	71,084
Italy,	....	....	925,535	130,487	1,056,022
Sardinia,	69	803	438,341	191,891	630,232

Whither exported.	ARTICLES NOT ENUMERATED. Manufactured.	Other.	TOTAL VALUE OF MERCHANDISE. In American vessels.	In foreign vessels.	To each country.
Sicily,	61	....	53,409	3 490	56,899
Trieste and other Aust. ports,	485	357	843.311	332,064	1,175,375
Turkey, Levant, &c.,	1,[illegible]25	150	61.570	....	61 570
Hayti,	11,304	3 577	1,164 347	22 670	1,187.017
Mexico,	13,230	6,279	129,643	80 198	209.841
Central Republic of Amer.,	280	....	73 322	....	73.322
New Grenada,	741	319	2 ,025	33 630	53 655
Venezuela,	14 6[illegible]6	2.661	560 859	1 ,615	571.474
Brazil,	9 005	39,6[illegible]8	2.309.729	257.2[illegible]9	2,566 938
Cisplatine Republic,	5,393	9[illegible]0	143 895	36.641	180,536
Argentine Republic,	296	899	111 379	12,575	123 954
Chili,	3,865	4 468	1.312,579	118.768	1,461 347
Peru,	1,488	287	133,417	59.53[illegible]	192 978
Equador,	....	....	....	27,253	27 253
China,	6,160	86,261	1,708.655	....	1,708,655
West Indies generally,	9	1,736	118,137	....	118,137
South America generally,	255	....	44,427	...	44.427
Asia generally,	151	225	161.679	....	161.679
Africa generally,	8,534	957	565.761	134.670	7[illegible]0.431
South Seas and Pacific,	41,901	3,743	310.187	....	310.187
Total,	1,168,984	1,199,276	97,514,472	52,796,192	150,310,664

SHIPMENT OF FLOUR AND GRAIN TO LIVERPOOL.

The Rochester Advertiser furnishes the following table, showing at what prices flour and wheat must be bought in New York and sold in Liverpool, in order to cover costs and charges:

FLOUR.

Price in N. York.	Sales in Liverpool.		Price in N. York.	Sales in Liverpool.	
$3 50 per bbl.	sales at 21*s.*	5*d.*	$5 12½ per bbl.	sales at 29*s.*	2*d.*
3 62½ "	" 22	0	5 25 "	" 29	9
3 75 "	" 22	7	5 37½ "	" 30	4
3 87½ "	" 23	2	5 50 "	" 30	11
4 00 "	" 23	9	5 62½ "	" 31	6
4 12½ "	" 24	5	5 75 "	" 32	1
4 25 "	" 25	0	5 87½ "	" 32	8
4 37½ "	" 25	7	6 00 "	" 33	4
4 50 "	" 26	3	6 12½ "	" 33	11
4 62½ "	" 26	10	6 25 "	" 34	6
4 75 "	" 27	5	6 37½ "	" 35	1
4 87½ "	" 28	0	6 50 "	" 35	8
5 00 "	" 28	7			

These estimates are made with exchanges at 7 per cent. When they are more or less than this, of course the sterling rates will be reduced or increased in proportion. If 5 per cent. primage be charged, there must be added to the above rates, the following charges for freight:

If freights be	Added to the above rates.	If freights be	Added to the above rates.
3*s.* 6*d.* per bbl.	0*s.* 6½*d.* per bbl.	5*s.* 6*d.* per bbl.	2*s.* 8¾*d.* per bbl.
4 0 "	1 0¾ "	6 0 "	3 3½ "
4 6 "	1 7¼ "	6 6 "	3 10 "
5 0 "	2 2 "		

WHEAT.

Price in New York. per 60 lbs.	Price in Liverpool, per 70 lbs.	Price in New York, per 60 lbs.	Price in Liverpool, per 70 lbs.
75*c*.	sales at 5*s* 9½*d*.	120*c*.	sales at 8*s*. 4½*d*.
80	" 6 0½	125	" 8 8
90	" 6 7	130	" 8 11
95	" 6 11	135	" 9 2
100	" 7 2½	140	" 9 5
105	" 7 6	145	" 9 8
110	" 7 9½	150	" 10 0
115	" 8 1		

Where freights range from 11d. per imperial bushel of 70 pounds, with 5 per cent. primage, to 2s. per bushel, there should be added to the above rates from 1 1-4d. a 1s. 6 1-2d. per bushel. The sales in New York are always made at 60 pounds the bushel, and in Liverpool at 70 pounds. The charges are made up of the following items: say exchange at 7 per cent.; commission, &c., 4 per cent.; brokerage, &c., 3 cents per bushel; marine insurance, 1 1-4 per cent.; dock and town dues, cartage, turning, storage, fire insurance, loss in weight, 2 1-2 per cent.; commission for selling, &c., 4 1-2 per cent.; which must be added to the current rates of freight.

CORN.

Indian corn, by the same rule, with 7 per cent. exchange, and 9d. sterling freight, with 5 per cent. primage, gives the estimate below. In order to cover costs and charges, the purchase in New York, and the sales in Liverpool, must be at the following rates:

Price in New York, per 56 lbs.	Price in Liverpool, per 480 lbs.	Price in New York, per 56 lbs.	Price in Liverpool, per 480 lbs.
45*c*.	sales at 30*s*. 2*d*.	75*c*.	sales at 42*s*. 8*d*.
50	" 32 1	80	" 45 0
55	" 34 1¼	85	" 47 3
60	" 36 3	90	" 49 6
65	" 38 4	95	" 51 9
70	" 40 6	100	" 54 0

If freights range from 10d. (with 7 per cent. primage,) to 2s. per imperial bushel, there must be added to the above rates from 9 1-2d. to 12s. per 480 pounds.

THE FINE ARTS IN ST. LOUIS.

These, as well as the more common arts of civilization, come very properly within the range of political economy; for, although their products add little to the more essential necessaries of life, yet it concerns society to know what portion of its members are engaged in each and every pursuit, and what the encouragement

and reward received by those engaged in the respective departments of labor and of art. Notwithstanding they may not directly minister to our physical enjoyments, yet they are calculated to refine and elevate our moral nature, and to enlarge the means of human happiness; and hence they deserve, and should receive, the patronage of all who desire to improve the condition of man. And we are pleased to observe that the citizens of St. Louis evince a disposition to patronize and encourage the several branches of the fine arts in a manner creditable to their taste and intelligence.

In ARCHITECTURE, St. Louis will compare favorably with any city of its size in the Union. Many of the buildings, both public and private, are highly creditable to the artists who designed them, and would be esteemed ornaments to any city on the continent. This may be considered the most important branch of the fine arts—for, besides its value in an economical point of view, it is the precursor of the other branches; for, wherever architecture flourishes, there painting and sculpture are sure to follow.

PAINTING, also, receives liberal encouragement, and we have in our city a number of artists, whose works are esteemed as possessing considerable merit.

SCULPTURE, also, has recently made its appearance in our city, and we are pleased to learn that it is likely to receive a most liberal patronage. We visited, a few days since, the studio of Mr. ALFRED S. WAUGH, and found him engaged on a bust of the Rt. Rev. Bishop HAWKS, which was then nearly finished. We do not profess to have a cultivated taste in regard to works of this kind; but to say nothing of the resemblance, which is close and striking, the artist has, in our judgment, been most happy in catching the characteristic air and bearing of the original. This imparts a spirit and animation to the bust which we have but rarely observed in works of the kind. Indeed, so powerful is the effect from this cause, that the likeness seems to kindle up in every feature the more we look at it, until we feel as though in the living presence of the original.

We also observed a bust of the Rev. Dr. POTTS, which struck us as bearing a strong likeness to the original, but being less acquainted with this gentleman, we are not prepared to express so decided an opinion in regard to the merits of the work. We learn, however, that his more intimate acquaintances esteem it an excellant likeness.

In nothing, however, were we more pleased than in receiving information that these busts have been presented to the reverend gentlemen by the members of their respective churches. This is a most pleasing manner which they have adopted of testifying their regard for their respective pastors; for, like every other benevolent action, the benefits are not confined to the primary objects, and it is a gratifying reflection, that in the present case the arts have come in for their full share. How excellent the quality, and how beautiful the economy of benevolence!

MOULDING, or CASTING, has also been recently introduced, and Mr. P. CRUMMEN, Jr., *Figuriste*, on Second street, has many highly classic models, from which

he furnishes copies at reasonable prices; and judging from the specimens that we have seen at different places in the city, we conclude he he have met with liberal encouragement.

MISCELLANEOUS—IMPROVEMENTS AND DISCOVERIES.

Gutta Percha.—Gutta Percha is a vegetable substance, which, though only known to us for a few years, is now extensively employed in the arts for various purposes, as a substitute for India rubber. According to Sir W. J. Hooker, the tree from which it is obtained, belongs to the natural order Sapotaceæ, found in abundance in the island of Singapore, and in some dense forests at the extremity of the Malayan peninsula. Mr. Brooke states that the tree is called *niato* by the Sarawak people, on the island of Borneo, and that it attains a considerable size, even as large as six feet in diameter. The timber, however, is said to be too loose and open for the purposes of building; but the tree bears a fruit which yields a concrete oil, used by the natives as food.

The name "gutta percha" (pronounced in English, gut-ta-per-tsha,) is a Malay term, and signifies ragged gum. It is contained in the sap and milky juice of the tree, and quickly coagulates on exposure to the air; from twenty to thirty pounds being the average produce of each tree. For collecting the sap, the trees are felled, barked, and left dry and useless. The gutta, or gum, in its crude state, is received in scraps, blocks, or in rolls of thin layers. It is first freed from impurities by deviling, or kneading in hot water, when it is left soft and plastic, of about the consistency of putty.

When thus prepared, the gutta has many curious properties. If placed in water of a temperature of 110 deg. F., no effect is produced upon it; but, when the temperature is raised to 145 deg., or upwards, it gradually becomes soft and pliant, as to capability of being moulded into any form, or of being rolled out into flat plates. When in the soft state, it becomes somewhat elastic; but, as it cools, it gradually regains its original hardness and rigidity, and appears, when cut or broken, like horn. It may be softened and hardened any number of times, without injury to the material. When cooled, unlike India rubber, it has little elasticity; but it has such strength and tenacity, that a slip, one-eighth of an inch in diameter, has sustained the weight of 42 pounds.

Gutta percha, like India rubber, is soluble in coal naptha, oil of turpentine, ether, or in caout-choucine; but it is not acted upon either by alcohol or water. In solution, it is also applied like India rubber, for rendering cloth water proof. It is likewise applied for numerous purposes for which leather is used, such as belting for machinery, harnesses, bridles, straps, clasps, belts, clock springs, soles of shoes, &c. The material is also applicable to the manufacture of numerous other articles of use and ornament, as surgical instruments, engine hose, water

pipes, door handles, walking sticks, chess men, picture frames, book covers, handles of knives and swords, buttons, combs, flutes, &c., &c. In short, it promises to become quite, if not a more important article in commerce and in the arts, than India rubber itself.

It is stated, on good authority, that there are two kinds of gutta percha—one light, and the other dark colored. Specimens of young trees, from which this substance is obtained, are now flourishing in the Royal Botanic Garden, at Kew, near London; but whether they are sufficiently hardy to withstand the climate of any part of the United States, we have not means of knowing.—[*American Agriculturalist.*

Preservation of Grapes.—A writer in the Horticulturalist gives his mode of preserving grapes for winter use, as follows:

"At my farm, a few miles from the city, I have an ice house well constructed, which keeps a supply of ice through the whole year. In this I practice one mode of preserving grapes. This mode is applied to those which I wish for more immediate use, say from the season of frosts till near Christmas.

I have, in this ice house, a series of open shelves, made of thin and narrow strips of pine, so as to form slender lattices. As soon as there is danger of a frost, which might injure the grape, (in general early in October,) I have the grapes for this purpose carefully picked, and laid in single layers on these lattice shelves in the ice house. There the temperature is so low and regular, that no perceptible change takes place for a long time, and I am therefore able to supply my table every day with grapes, as fresh, to all appearance, as when picked, for a month or six weeks after they are usually to be had in market.

The second mode is calculated to preserve them for a longer time. By its means, I usually have a good supply from Christmas to March, and have once or twice kept them quite sound till April.

It is very simple. The grapes should be gathered a little before full maturity—say the last of September here. A fine windy day should be chosen, and the fruit should be picked and packed away, quite dry, as upon this depends their keeping well. You should be provided with a proper number of small boxes, holding about a peck each, grape jars, or champagne baskets—the latter answer the purpose well, if lined loosely with paper before using them. I put a layer of cotton in the bottom, and then a layer of grapes, and so alternately until the box is full; I then cover with a layer of cotton, and fasten the cover down with nails or otherwise.

I do not find it best to endeavor to exclude the air entirely. Decay takes place sooner when that is done. For the same reason, I have found it better to choose *small* boxes, such as may be opened every week, as wanted for use, rather than larger ones."

We subjoin another mode extracted from the Cultivator:

"We lately saw some very fine Catawba grapes, raised by Mr. E. Dorr, of this city, and preserved by Mr. D. K. Vanderlip, in *ground cork*. The fruit has nearly the freshness of appearance and sprightliness of flavor, that it had when first picked from the vines—being decidedly the best we ever saw at this season of the year. The cork is thought to be the best material for this purpose that has been tried. We should think it might be well prepared in one of Pitt's corn and cobb cutters."

New use for Castor Oil.—The Alton Telegraph says: "We were presented by Mr. E. Morse, of this city, with one of his candles manufactured from castor oil, and were induced to test its qualities with a sperm candle. The experiment resulted in the demonstration that the castor oil lasted longer than the sperm candle, and the light of the former was decidedly more brilliant and extensive than that of the latter. We could not discover the least unpleasant smell from burning the castor oil candle, and believe that they are well calculated to supercede entirely the use of the sperm candle. Mr. M. informs us that they could be afforded by the quantity at twenty-five cents per pound—about one-half the cost of sperm candles."

Separating the Hull of Wheat.—A patent has been taken out for a new mode of hulling wheat. It simply consists in passing the wheat or grain through a jet of steam, in any convenient manner, so that each grain shall be thoroughly acted upon by the steam, which gives to the hull such toughness that it is not pulverized by the action of the stones in grinding, but it peels off in large flakes. J. W. Howlet and F. M. Walker are the pateentees.

It is well known that, when grain is ground in too dry a state, the hull is so brittle that a portion of it is pulverized, and passes through the bolter with the flour, thus reducing its mercantile value. This invention, then, removes this difficulty, for the steam toughens the hull so that it peels off most beautifully, and allows all that can be converted into fine flour to pass through the bolter, while the hull, like a thin membrane, is completely separated.—*Junction Beacon.*

Important Invention.—Mr. David Isham, a machinist of Hartford, Conn., has recently invented a process by which cast iron can be converted, almost instantly, and with but slight expense and labor, into steel. Twenty minutes only is necessary to convert a ton of iron into steel of the best quality, a process ordinary requiring from six to ten days. The inventor has been offered $12,000 for the patent right for the State of Pennsylvania alone. Articles manufactured from steel thus prepared, have been proved and found equal to those manufactured from the best English steel.—*Artizan*

M. TARVER,

ATTORNEY AND COUNSELLOR AT LAW,

No. 99 Chesnut Street, St. Louis,

(TWO DOORS WEST OF THE POST OFFICE.)

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The subscriber will reduce the charges to the planter, on tobacco inspected at his warehouse, to one-half of what has heretofore been paid by them in this city—say from seventy-five cents to thirty-seven and a half cents per hogshead, and as soon as the tobacco is sold and weighed, will pay to the planter the prooeeds of his tobacco, without any extra charge.

All tobacco purchased at his house, shall be turned out coopered to the satisfaction of the purchaser, and shall be delivered at any time during the day from sunrise to sunset. March 1, 1848. GEORGE W. JENKS.

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N. B.—To whom reference will be given by calling at the School Room.

March 1, 1848.

THE

WESTERN JOURNAL,

M. TARVER and T. F. RISK, Editors and Proprietors.

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THE

WESTERN JOURNAL.

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ART. I.—CORPORATIONS FOR INDUSTRIAL PURPOSES.

There is an inherent principle in man's nature, continually inviting him to associate with his species, and to form social combinations for the amelioration and improvement of his condition; and the happiness of the human family depends mainly upon the observance of this principle, and the wisdom and justice which characterize the social economy. Hence, it is the proper function of the statesman and philosopher to study the nature of man, and give such form and direction to social institutions, as will make them productive of the greatest good to the greatest number of individuals. The infinite diversity of natural endowments which distinguish one individual from another—the varied conditions arising from the social organization and common accidents of life—the innumerable and varied sources whence the means of subsistence are obtained—and the variety of employments necessary to the attainment of these means—all indicate the necessity of affording encouragement to the weak, and of restraining the power of the strong.

It is not sufficient that the laws of society leave the pursuit of happiness free to every individual, and protect them in the enjoyment of their just acquisitions; the legislator must proceed a step further, and, making himself acquainted with the peculiar wants and condition of his constituents, devise the means of promoting the welfare of such as are compelled to labor against a higher degree of intelligence, and the power of accumulated wealth.

Having considered, in a previous number, the means of improving the intellectual condition of such as are unable to educate themselves,

we now propose to enquire whether it is practicable to devise and adopt a policy calculated to promote the improvement of the pecuniary condition of the same class, without violating the rights and privileges of other portions of the community.

It is the nature of accumulated wealth to increase in power, until it subjugates labor, and absorbs all its profits. This is an evil which has prevailed, to a greater or less extent, in every civilized community known to history, and may be regarded as the remote, if not the final cause of all the great revolutions which have taken place in the nations of the earth, and still remains an obstruction to the progress of civilization, which can never be overcome, but by a just and equitable division of profits between labor and capital.

There is something so plausible, and, in appearance, so much in conformity to natural justice, in the proposition, that every one should be protected in the full and unrestrained enjoyment of his own acquisitions, with the privilege of demanding from others such profits for their use, as he may see fit: that, it challenges the ready assent of all mankind—and yet, when, to its full extent, this proposition is carried into practice, it operrtes unjustly towards a large portion of the community, and results in little less than tyranny.

Land, with the privileges which pertain to its possession, constitutes much the largest portion of the wealth of every country; and, when it has all been once appropriated, the subsequent increase of population must consist mainly of such as are born to no other inheritance than that of labor. Coming into existence, with such advantages against them, and left to struggle, unsupported against the power of wealth and intelligence, nothing less than extraordinary circumstances can extricate the offspring from the condition of the parent; and, although it occasionally happens that some individuals escape from this unfortunate condition, yet an equal, and perhaps a greater number, lose the advantages which they possessed in the beginning, and are compelled to take their places among the destitute; and hence, notwithstanding *the condition of individuals* is continually undergoing change, yet *the relative condition of labor and capital* remains unaltered.

Although labor must be regarded as the natural condition of man, and necessary not only to the enjoyment of a reasonable degree of happiness, but to the support of his existence also, yet, unless it receives

a reasonable portion of the profits accruing from its operations, it becomes an evil, and the cause of degradation instead of a blessing.

The organization and adjustment of the laws of society, so as to secure to wealth its true value, and, at the same time, allow a reasonable profit to labor, may be regarded as the most difficult problem in political economy. One who labors through life, and, having reared a family, leaves his offspring in a condition no better than was that of his own in the beginning, has gained nothing—his labor has yielded no profit. And so it is with the laboring part of the community, as a class; for, if their condition remains the same, without a diminution in the relative proportion of numbers, and without improvement for generations in succession, we may justly conclude that they have realized no profit, and that all beyond that which was necessary to sustain them in a working condition, has been absorbed by the proprietors of the soil, and other capitalists. Where this is the case—it matters not what the form of government, nor with how much apparent solicitude the laws provide for the protection of the rights and privileges of the subject—that class which possess the natural and artificial wealth, possess also a property in labor—differing, it is true, in some respects, but for all practical purposes—as complete as that of the master in the slave which is bought with his money; for the latter must be fed and clothed, and kept in a working condition, and the former receives no more; all over this goes to pay for the privilege of cultivating the soil, and using the money, or operating the machinery erected by capital.

The food and clothing of the laboring classes cannot be regarded as profit. Profit is something gained, and if their condition has remained unimproved through a series of generations, it is evidence that the profits of labor, whether great or small, have been absorbed by the owners of property. And the difference between the condition of free laborers, who receive no profit, and that of slaves, consists principally in the right of the former to choose their employers, and generally, to select their occupations, and in exemption from corporal punishment; but they are, nevertheless, compelled to labor by necessity as strong, and not less relenting, than the chains that bind, and the rod which compels the slave. In addition to the necessities of his own nature, the one is impelled by the claims of a helpless offspring, and of parents decrepid with age; the other simply by the rod, which he may avert by obedience.

In Europe the advantages are all in favor of wealth, which receives and appropriates to itself almost the entire profits of labor. But the abundance and cheapness of lands in the United States have been hitherto the means of enabling the laboring classes to escape, in a great measure, from the tyranny of that power which is based on the proprietorship of the soil; yet, nevertheless, they require protection from the influence of money capital. No extensive enterprise affecting the economical pursuits of the country, can be carried into effect without the agency of capital; and owing to its selfish nature, capital rarely seeks employment from motives of benevolence; and being able to subsist without employment, it can wait until labor is compelled, by necessity, to accede to its terms. It never contemplates a division of profits, for it understands, as by instinct, that this would destroy its power, and hence, it always claims the lion's share.

Another drawback on labor in this country, and more especially in the west, is the great distance between the producers and consumers. While this absorbs the profits of labor, it also employs much the greater part of the capital, and thus prevents its permanent investment in local improvements. And furthermore, it tends to confine the people to a few employments, thus preventing that division of labor, and diversity of pursuits, so necessary to the full development of the resources of the country. Hence, notwithstanding our free institutions, the abolishment of entails, and the law of primogeniture, and also the abundance and cheapness of land, yet labor is in danger of falling into the same abject condition here as in Europe.

The laws of every country seem to evince a greater solicitude for the protection of property, than for the welfare of persons; and while they guard with vigilance the profits of capital, leave labor to struggle for the means of subsistence merely. We do not object that property is protected, nor deny that the owner is entitled to receive a reasonable profit from others for its use; but we desire that labor should receive encouragement and protection also. We desire that the strength of the human arm, directed by intelligence, and honestly employed, should not only be sustained in a working condition, but that these *faculties* should bear some proportion to *capital*, and receive a reasonable and just dividend of the profits accruing from their joint operations. Less cannot supply the natural demands of justice; and we have shown that labor receives no profit, unless something remains

after satisfying the common wants of nature, in which are included the support of helpless infancy and decrepid age. We would, however, take nothing from the rich, but give encouragement to the poor; we would not pull down the strong, but strengthen the hands of the weak.

A change so important to the interest and happiness of the human race, cannot be effected by acts of injustice or violence; it must be of slow growth, and the work of more than one generation; it must be based on the principles of natural justice, modified by the wants and the condition of both the people and the country; and hence, it is important that we examine the subject and devise the means of improvement before the evils which we deprecate have become too deeply and firmly rooted to be eradicated.

Encouragement to a division of labor, by increasing the number of pursuits, may be regarded as the first step towards relieving it from the predominance of capital. By diversifying employments, a wider field is opened for the exercise of that endless variety of physical and mental faculties which so strongly mark the individuals of the human family. Philosophy finds a meaning in this variety of character, and perceiving its adaptation to the development of the varied resources of human subsistence, indicates pursuits corresponding to the peculiar inclinations and capacity of each individual. These varied endowments may be regarded as the peculiar property of those who possess them, and when wisely directed, are calculated, not only to facilitate the operations of labor, and increase its profits, but to render it more pleasing and agreeable also. But in a community where the great mass is crowded into one, or but a very limited number of pursuits, these varied adaptations not only lose their advantages, but become detrimental to that portion of the operatives who, against their natural inclinations, are complled to labor in employments for which they were not designed by nature. In such circumstances, it is not to be expected that mankind can be reconciled to labor, and it is natural that many should endeavor to escape from such a condition by any means in their power.

These are subjects on which we have bestowed much reflection, and admit that we have been always met by insurmountable difficulties in devising any plan that will secure to labor what we esteem a fair division of profits with capital, without doing violence to rights which have been secured by the constitution and laws of the country. Of

all the schemes which have been projected for the establishment of communities, none, we believe, have stood the test of practical experience. Individual acquisitions, and the absolute right of control over property, the produce of their own labor, must be left without restraint, or we take from man one of the strongest motives to labor. And, if the profits accruing from capital should be reduced too low, this would tend likewise, to diminish the ardor of acquisition. Hence we conclude, that it is necessary to leave the field of enterprise open to all, under the direction of laws that will secure to each the enjoyment and control of his own honest acquisitions; and that our hopes of the amelioration of the condition of the working classes must depend mainly on intellectual improvement, and a division of labor.

Having arrived at these conclusions, the inquiry naturally follows, How shall we encourage or promote the division of labor to an extent that will create a demand for, and call into requisition the varied faculties of the entire community, so as to bring capital instead of labor into market, in search of employment? We answer, a general law, authorizing the establishment of corporations for industrial purposes, would, in our opinion, do much towards bringing about this result; and the better to explain the nature of such a law, we publish entire the following act of the legislature of New York, passed on the 17th day of February, 1848:

AN ACT TO AUTHORIZE THE FORMATION OF CORPORATIONS FOR MANUFACTURING, MINING, MECHANICAL OR CHEMICAL PURPOSES.

Sec. 1. At any time hereafter, any three or more persons, who may desire to form a company for the purpose of carrying on any kind of manufacturing, mining, mechanical, or chemical business, may make, sign, and acknowledge before some officer competent to take the acknowledgment of deeds, and file in the office of the clerk of the county in which the business of the company shall be carried on, and a duplicate thereof in the office of the Secretary of State, a certificate in writing, in which shall be stated the corporate name of the said company, and the objects for which the company shall be formed, the amount of the capital stock of the said company, the term of its existence, not to exceed fifty years, the number of shares of which the said stock shall consist, the number of trustees and their names, who shall manage the concerns of said company for the first year, and the names of the town and county in which the operations of the said company are to be carried on.

Sec. 2. When the certificate shall have been filed, as aforesaid, the persons who shall have signed and acknowledged the same, and their successors, shall be a body politic and corporate, in fact and in name, by the name stated in such cer-

tificate; and by that name have succession, and shall be capable of suing and being sued in any court of law or equity in this State, and they and their successors may have a common seal, and may make and alter the same at pleasure; and they shall, by their corporate name, be capable in law of purchasing, holding, and conveying any real and personal estate whatever, which may be necessary to enable the said company to carry on their operations named in such certificate, but shall not mortgage the same or give any lien thereon.

Sec. 3. The stock, property, and concerns of such company shall be managed by not less than three, nor more than nine trustees, who shall respectively be stockholders in such company and citizens of the United States, and a majority of whom shall be citizens of this State, who shall, except the first year, be annually elected by the stockholders, at such time and place as may be directed by the by-laws of the company; and public notice of the time and place of holding such election shall be published, not less than ten days previous thereto, in the newspaper printed nearest to the place where the operations of the said company shall be carried on; and the election shall be made by such of the stockholders as shall attend for that purpose, either in person or by proxy. All elections shall be by ballot, and each stockholder shall be entitled to as many votes as he owns shares of stock in the said company, and the persons receiving the greatest number of votes shall be trustees; and when any vacancy shall happen among the trustees, by death, resignation or otherwise, it shall be filled for the remainder of the year in such manner as may be provided for by the by-laws of the said company.

Sec. 4. In case it shall happen at any time, that an election of trustees shall not be made on the day designated by the by-laws of said company, when it ought to have been made, the company for that reason shall not be dissolved, but it shall be lawful on any other day, to hold an election for trustees, in such manner as shall be provided for by the said by laws, and all acts of trustees shall be valid and binding as against such company, until their successors shall be elected.

Sec. 5. There shall be a President of the company, who shall be designated from the number of the trustees, and also such subordinate officers as the company by its by-laws may designate, who may be elected or appointed, and required to give such security for the faithful performance of the duties of their office as the company by its by-laws may require.

Sec. 6. It shall be lawful for the trustees to call in and demand from the stockholders respectively, all such sums of money by them subscribed, at such times, and in such payments or instalments as the trustees shall deem proper, under the penalty of forfeiting the shares of stock subscribed for, and all previous payments made thereon, if payment shall not be made by the stockholders within sixty days after a personal demand or notice requiring such payment shall have been published for six successive weeks in the newspaper nearest to the place where the business of the company shall be carried on as aforesaid.

Sec. 7. The trustees of such company shall have power to make such pru-

dential by-laws as they shall deem proper for the management and disposition of the stock and business affairs of such company, not inconsistent with the laws of this State, and prescribing the duties of officers, artificers, and servants that may be employed; for the appointment of all officers, and for carrying on all kinds of business within the objects and purposes of such company.

Sec. 8. The stock of such company shall be deemed personal estate, and shall be transferable in such manner as shall be prescribed by the by laws of the company; but no shares shall be transferable until all previous calls thereon shall have been fully paid in, or shall have been declared forfeited for the non-payment of calls thereon: And it shall not be lawful for such company to use any of their funds in the purchase of any stock in any other corporation.

Sec. 9. The copy of any certificate of incorporation, filed in pursuance of this act, certified by the county clerk or his deputy, to be a true copy, and of the whole of such certificate, shall be received in all courts and places, as presumptive legal evidence of the facts therein stated.

Sec. 10. All the stockholders of every company incorporated under this act, shall be severally, individually liable to the creditors of the company in which they are stockholders, to an amount equal to the amount of stock held by them respectively for all debts and contracts made by such company, until the whole amount of capital stock fixed and limited by such company shall have been paid in, and a certificate thereof shall have been made and recorded, as prescribed in the following section; and the capital stock, so fixed and limited, shall all be paid in, one-half thereof within one year, and the other half thereof within two years from the incorporation of said company, or such corporation shall be dissolved.

Sec. 11. The president and a majority of the trustees, within thirty days after the payment of the last instaslment of the capital stock, so fixed and limited by the company, shall make a certificate stating the amount of the capital so fixed and paid in; which certificate shall be signed and sworn to by the president and a majority of the trustees; and they shall, within the said thirty days, record the same in the office of the county clerk of the county wherein the business of the said company is carried on.

Sec. 12. Every such company shall annually, within twenty days from the first day of January, make a report which shall be published in some newspaper published in the town, city, or village, or if there be no newspaper published in said town, city, or village, then in some newspaper published nearest the place where the business of said company is carried on, which shall state the amount of capital, and of the proportion actually paid in, and the amount of its existing debts, which report shall be signed by the president and a majority of the trustees; and shall be verified by the oath of the president or secretary of the said company, and filed in the office of the clerk of the county where the business of the company shall be carried on; and if any of said companies shall fail so to do, all the trustees of the company shall be jointly and severally liable for all the

debts of the company then existing, and for all that shall be contracted before such report shall be made.

SEC. 13. If the trustees of any such company shall declare and pay any dividend when the company is insolvent, or any dividend, the payment of which would render it insolvent, or which would diminish the amount of its capital stock, they shall be jointly and severally liable for all the debts of the company then existing, and for all that shall be thereafter contracted, while they shall respectively continue in office: *Provided*, that if any of the trustees shall object to the declaring of such dividend or to the payment of the same, and shall at any time before the time fixed for the payment thereof, file a certificate of their objection in writing with the clerk of the company and with the clerk of the county, they shall be exempt from the said liability.

SEC. 14. Nothing but money shall be considered as payment of any part of the capital stock, and no loan of money shall be made by any such company to any stockholder therein; and if any such loan shall be made to a stockholder, the officers who shall make it, or who shall assent thereto, shall be jointly and severally liable to the extent of such loan and interest, for all the debts of the company contracted before the re-payment of the sum so loaned.

SEC. 15. If any certificate or report made, or public notice given, by the officers of any such company, in pursuance of the provisions of this act, shall be false in any material representation, all the officers who shall have signed the same, knowing it to be false, shall be jointly and severally liable for all the debts of the company, contracted while they are stockholders or officers thereof.

SEC. 16. No person, holding stock in any such company, as executor, administrator, guardian, or trustee, and no person, holding such stock as collateral security, shall be personally subject to any liability as stockholder of such company; but the person pledging such stock shall be considered as holding the same, and shall be liable as a stockholder accordingly, and the estates and funds in the hands of such executor, administrator, guardian, or trustee, shall be liable in like manner, and to the same extent as the testator or intestate, or the ward or person interested in such trust fund would have been, if he had been living and competent to act, and held the same stock in his own name.

SEC. 17. Every such executor, administrator, guardian, or trustee, shall represent the share of stock in his hands at all meetings of the company, and may vote accordingly as a stockholder; and every person who shall pledge his stock as aforesaid, may, nevertheless, represent the same at all such meetings, and may vote accordingly as a stockholder.

SEC. 18. The stockholders of any company, organized under the provisions of this act, shall be jointly and severally individually liable for all debts that may be due and owing to all their laborers, servants, and apprentices, for services performed for such corporation.

SEC. 19. The legislature may at any time alter, amend, or repeal this act, or

may annul or repeal any incorporation formed or created under this act; but such amendment or repeal shall not, nor shall the dissolution of any such company, take away or impair any remedy given against any such corporation, its stockholders or officers, for any liability which shall have been previously incurred.

Sec. 20. Any corporation or company heretofore formed, either by special act or under the general law, and now existing for any manufacturing, mining, mechanical, or chemical purposes, or any company which may be formed under this act, may increase or diminish its capital stock by complying with the provisions of this act, in any amount which may be deemed sufficient and proper for the purposes of the corporation, and may also extend its business to any other manufacturing, mining, mechanical, or chemical business, subject to the provisions and liabilities of this act. But, before any corporation shall be entitled to diminish the amount of its capital stock, if the amount of its debts and liabilities shall exceed the amount of capital to which it is proposed to be reduced, such amount of debts and liabilities shall be satisfied and reduced so as not to exceed such diminished amount of capital; and any existing company, heretofore formed under the general law, or any special act, may come under and avail itself of the privileges and provisions of this act, by complying with the following provisions; and thereupon such company, its officers and stockholders, shall be subject to all the restrictions, duties, and liabilities of this act.

Sec. 21. Whenever any company shall desire to call a meeting of the stockholders, for the purpose of availing itself of the privileges and provisions of this act, or for increasing or diminishing the amount of its capital stock, or for extending or changing its business, it shall be the duty of the trustees to publish a notice, signed by at least a majority of them, in a newspaper in the county, if any shall be published therein, at least three successive weeks, and to deposit a written or printed copy thereof in the post office, addressed to each stockholder at his usual place of residence, at least three weeks previous to the day fixed upon for holding such meeting; specifying the object of the meeting, the time and place, when and where such meeting shall be held, and the amount to which it shall be extended or changed; and a vote of at least two-thirds of all the shares of stock shall be necessary to an increase or diminution of the amount of its capital stock, or the extension or change of its business, as aforesaid, or to enable a company to avail itself of the provisions of this act.

Sec. 22. If, at any time and place specified in the notice provided for in the preceding section of this act, stockholders shall appear in person or by proxy, in number representing not less than two-thirds of all the shares of stock of the corporation, they shall organize by choosing one of the trustees chairman of the meeting, and also a suitable person for secretary, and proceed to a vote of those present, in person or by proxy; and if, on canvassing the votes, it shall appear that a sufficient number of votes has been given in favor of increasing or diminishing the amount of capital, or of extending or changing its business, as aforesaid,

or for availing itself of the privileges and provisions of this act, a certificate of the proceedings, showing a compliance with the provisions of this act, the amount of capital actually paid in, the business to which it is extended or changed, the whole amount of debts and liabilities of the company, and the amount to which the capital stock shall be increased or diminished, shall be made out, signed and verified by the affidavit of the chairman, and be countersigned by the secretary; and such certificate shall be acknowledged by the chairman, and filed as required by the first section of this act, and when so filed, the capital stock of such corporation shall be increased or diminished, to the amount specified in such certificate, and the business extended or changed as aforesaid, and the company shall be entitled to the privileges and provisions, and be subject to the liabilities of this act, as the case may be.

Sec. 23. If the indebtedness of any such company shall at any time exceed the amount of its capital stock, the trustees of such company assenting thereto shall be personally and individually liable for such excess, to the creditors of such company.

Sec. 24. No stockholder shall be personally liable for the payment of any debt contracted by any company formed under this act, which is not to be paid within one year from the time the debt is contracted, nor unless a suit for the collection of such debt shall be brought against such company, within one year after the debt shall become due; and no suit shall be brought against any stockholder who shall cease to be a stockholder in any such company, for any debt so contracted, unless the same shall be commenced within two years from the time he shall have ceased to be a stockholder in such company, nor until an execution against the company shall have been returned unsatisfied, in whole or in part.

Sec. 25. It shall be the duty of the trustees of every such corporation or company, to cause a book to be kept by the treasurer or clerk thereof, containing the names of all persons, alphabetically arranged, who are or shall, within six years, have been stockholders of such company, and showing their places of residence, the number of shares of stock held by them respectively, and the time when they respectively became the owners of such shares, and the amount of stock actually paid in; which book shall, during the usual business hours of the day, on every day, except Sunday and the fourth day of July, be open for the inspection of stockholders and creditors of the company, and their personal representatives, at the office or principal place of business of such company, in the county where its business operations shall be located; and any and every such stockholder, creditor, or representative, shall have a right to make extracts from such book; and no transfer of stock shall be valid for any purpose whatever, except to render the person to whom it shall be transferred liable for the debts of the company, according to the provisions of this act, until it shall have been entered therein, as required by this section, by an entry showing to and from whom transferred. Such book shall be presumptive evidence of the facts therein stated, in favor of

the plaintiff, in any suit or proceeding against such company, or against any one or more stockholders. Every officer or agent of any such company, who shall neglect to make any proper entry in such book, or shall refuse or neglect to exhibit the same, or allow the same to be inspected, and extracts to be taken therefrom, as provided by this section, shall be deemed guilty of a misdemeanor, and the company shall forfeit and pay to the party injured, a penalty of fifty dollars for every such neglect or refusal, and all the damages resulting therefrom: And every company that shall neglect to keep such book open for inspection, as aforesaid, shall forfeit to the people the sum of fifty dollars for every day it shall so neglect, to be sued for and recovered, in the name of the people, by the district attorney of the county in which the business of such corporation shall be located; and when so recovered, the amount shall be paid into the treasury of such county for the use thereof.

Sec. 26. Every corporation created under this act shall possess the general powers and privileges, and be subject to the liabilities and restrictions contained in title third, of chapter eighteen, of the first part of the Revised Statutes.

Sec. 27. This act shall take effect immediately.

A similar law with some modifications, would be calculated to encourage the introduction and growth of many branches of employment which are at present neglected by capitalists and cannot be undertaken by individual enterprise without their aid. Manufacturing capital has rarely ever been known to emigrate from one country to another. So large a portion of this is invested in fixtures that when once located it cannot be removed without great loss, and from this and other causes every country must of necessity furnish the capital for building up its own manufactories; and it is our true policy in the beginning, to interest as many individuals as possible, for the purpose of enlisting the moral and political strength of the community in their favor. Under such a law many associations might be established and important branches of business carried into successful operation with the use of but very little money. One individual may possess skill, another, raw material, and a third money, and the first two as well as the last may become stockholders, and even the common laborer may come in for a share. But we perceive no reason why mechanics, artists, and laborers may not be authorized to associate under such a law for the purpose of prosecuting branches of business where but little money is required, and where the dividends depend entirely upon the products of their own labor. We admit that there may be practical objections to such associations, but we see no solid reason why such privileges should not be granted, nor do we perceive any reason why such a law might

not embrace macadamized and plank roads, or the building of bridges under the direction of the county court of the respective counties.

We are aware that owing to the abuse of the privileges granted to money corporations, that for many years past, great prejudices have existed against all chartered privileges; but a general law, granting the same privilege to all who choose to avail themselves of its benefits, having for its object the encouragement of industry, the building up of manufactures, and the development of the resources of the State, is liable to none of the objections which exist against money corporations.

ART. II.—PATENT OFFICE REPORT.

THE annual reports of the commissioner of patents, are classed with the public documents, and, going forth to the world, under the sanction of Congress, are generally regarded as the highest authority on all subjects coming properly within the range of his department. And hence these documents should be prepared with the utmost care, and with strict regard to the truth and accuracy of all the facts which they contain, otherwise they are calculated not only to mislead the present age, but to transmit error to future generations. The statesman, the philosopher, and the divine, all look to history for facts, and borrow light from the past to guide them in their present pursuits; but, if the facts from which they draw deductions have not been accurately observed, or faithfully reported, their conclusions must be wrong, and instead of teaching wisdom, history becomes the propogator of error.

It is, therefore, the first duty of those who undertake to collect facts, and to arrange and preserve them for future use, to examine them with the utmost care, lest they incur the fearful responsibility of becoming false teachers to those who live after them.

The present commissioner of patents does not seem to have considered his duties in so serious a light; or we think he would have been more careful in the collection of facts, as well as in the arrangement of his tables. As journalists, we esteem it our highest duty to place the facts of the day in their true light, for the benefit of the future, as well as the present. It is not our purpose to depreciate the labors of the commissioner of patents—his report contains much that is useful to be known; and when we take into consideration the fact that the collection and arrangement of statistics constitutes only a part of his duties, the work may be regarded as being as respectable as could be expected in such circumstances—and it may be safely affirmed, that full justice cannot be done in this department, until Congress shall provide for a separate bureau of statistics, than which,

nothing, in our estimatiion, would tend more to the dissemination of a correct knowledge of the resources of the country.

Without such knowledge, legislation can be distinguished by no better title than that of *impericism*, and is quite as liable to produce harm as benefit to the people.

At page 558 the author gives a "table exhibiting an estimate of the value of the products of labor and capital in the United States for the year 1847;" and the items arranged under the head of "agricultural products," according to his estimates, amount to the sum of $838,163,928. Now, it may be observed that there is no one fact within the range of political economy, which is so important to be known with some tolerable degree of accuracy, as the value of the agricultural products; for, without this knowledge, neither the agriculturist, the merchant, the manufacturer, nor legislator, can pursue their respective vocations, without being continually liable to disappointment in their calculations. Nor can succeeding ages profit by our history.

The first item under this head is the wheat crop, which is set down at 114,245,500 bushels, and estimated at $1 20 per bushel, making the sum of $137,094,600. Now, we think it may be assumed as an undeniable proposition, that the price of an article at the place where it is consumed, must be considered as its utmost value; and hence, in estimating the value of a crop of wheat, we should not take the price at New York or London as a standard, but ascertain its value at the various points where it is consumed, including the consumption at the farm where it is produced, with that consumed at the most remote places. This will give the true value of the wheat; but, if we desire to ascertain its value to the agriculturalists who grow it, we must deduct freights, and other charges incurred in sending it to a market; for the difference between the value at the farm and the value in a distant market, is not an agricultural product, but the result of capital and labor, used as agents of transportation and exchange. We have not the quotations at hand for the prices of wheat for last year; but, by making an average of the highest and lowest prices, at different periods of the present year, we find the average price at New York to be $1 27 per bushel, and $1 16½ at Baltimore, making the average of these two places about $1 22. The commissioner of patents has set down the cost of transportation from Buffalo to Albany at 21 cents per bushel, and if we add three cents for freight and other charges, from Albany to New York, this will make the freight, &c., from Buffalo to New York, 24 cents, leaving 98 cents per bushel as the value at Buffalo.

The cost of freights from Pittsburgh to Philadelphia, is set down at 30 to 33 cents; say it is 31 cents per bushel, and this will leave the value 90 cents at Pittsburgh. Now, if we take into consideration the cost of transportng wheat

from the farms of the interior to the different shipping points on the canals and railroads, we may fairly conclude that this item will amount to at least five cents more; thus reducing the value to 93 cents per bushel at Buffalo, and to 85 cents at Pittsburgh. And we are of opinion that when the average at New York and Baltimore is $1 21 cents per bushel, that the average value at the farms throughout the district of country that sells to those markets, cannot exceed $1 00; and hence, we have estimated the value of the crops east of the Allegheny Mountains and extending from Maine to Louisiana, at $1 00 per bushel. The quantity produced in this region is estimated at 56,969,500 bushels, which we value at $56,969,500. The balance, say 57,276,000 bushels, we estimate at 75 cents per bushel, amounting to $42,957,000—total, $99,926,500, being less than the value estimated by the commissioner of patents, by $37,168,100. And even this we believe to be considerably above the true value of the crop of 1847, to the producers at the places of consumption; for, comparatively, but a small portion of it goes to market. To enable us to form an opinion of the value of wheat in the west, we have carefully examined the prices for the present year at Cincinnati and St. Louis. At the former place we have made an average of the quotations at short intervals throughout the season, and find it to be 76 cents per bushel, and 74 cents at St. Louis. Now, if we estimate the cost of hauling it from the farms in the interior, to the shipping points, and the freights thence to the principal markets, the average value to the grower in the valley of the Mississippi will not exceed 65 cents per bushel, and not more than 75 to 80 cents in the lake region.

The next item in the commissioner's table, is Indian corn. This crop is estimated at 530,850,000 bushels, valued at 40 cents per bushel, making the total value $215,740,000. The quotations of the price of corn, from which we have made our estimates, are not as numerous as those of wheat; but we esteem them sufficient for an approximate value. From these we find the average at New York during the current year, to be 67 cents, and 52 cents at Baltimore. This latter may be too low—say it is 61 cents—and this would make the average at the two places 64 cents per bushel; and if the cost of transporting it to market be estimated the same as that of wheat, this will reduce the value to the grower far below 50 cents per bushel. We have, however, estimated the value of corn in all the New England States, New York, Pennsylvania, New Jersey, Delaware, and Maryland, at 50 cents per bushel. The produce of these States being estimated by the commissioner of patents at 70,780,000 bushels, amounts to $35,390,000. Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Oregon, Wisconsin, Michigan, and the District of Columbia, are set down as producing 167,670,000 bushels. This we

have estimated at 40 cents, and it amounts to $67,068,000. According to the estimates of the commissioner, Tennessee, Kentucky, Ohio, and Indiana are supposed to produce 240,000,000 bushels, which we have estimated at 25 cents per bushel, amounting to $60,000,000. We have estimated the price in the last mentioned States from the quotations at Cincinnati during the current year, from which we deduce an average price of 29 3-4 cents per bushel; and five cents is certainly much below the average cost of transporting it from the farms to market. Missouri, Illinois, and Iowa, are supposed by the commissioner, to produce 65,000,000 bushels; this we have estimated at 15 cents per bushel.

From regular semi-monthly quotations of prices at St. Louis during the current year, we find the average to be 22 cents, without sacks—and we esteem 7 cents as a low average cost of bringing it from the farms in the interior to market. According to these estimates, we make the value of the corn crop $172,048,000, and less than the estimate of the commissioner of patents by the sum of $43,692,000.

Beans and peas are each set down by the commissioner, at 25,000,000 bushels. The value of the first is estimated at $1 00 per bushel, and the last $1 20—total, $55,000,000, an amount about equal to the true value of the cotton crop. These articles were not noticed in the census of 1840, nor can we find any thing in the commissioner's report which indicates the source whence he derived his information as to the quantity or value. It is true, that under the head of "remarks," he says: "There being no satisfactory data for some of the estimates contained in this table, they are very probably above or below the real truths. But as imperfect as they are, they may enable others to make nearer approximations to the true quantities or values." We do not esteem this as a sufficient apology for such gross ignorance as we think the commissioner has betrayed upon this subject.

For, although he tells us that he possesses no satisfactory data, yet every one would very naturally presume that his information was such as to enable him to make a reasonable calculation, approximating in some degree, at least, to the confines of probability. It must be remarked, that these estimates do not include beans and peas, cultivated in gardens; for the products of the garden are placed under a separate head. Now, every observing individual, who has traveled through the United States, must know that beans are not grown as a field crop, except in a very few, and these very limited, districts; and we venture the assertion that there is not 2,000,000 bushels of beans produced annually in the United States, as a field crop. In a table contained in the commissioner's report, showing the quantity and value of each article which came to the Hudson river on all the canals during the years 1846 and 1847, peas and beans are placed together, and are set down at 96,800 bushels in 1846, and 106,088 bushels in 1847.

In the annual report of the Chamber of Commerce of Cincinnati, of 31st August, 1847, these articles are not mentioned, neither are they found in the table showing the articles cleared at Pittsburgh on the Pennsylvania Canal, during the fiscal years of 1846 and 1847; and none appear among the articles passed through the Chesapeake and Delaware Canal for the year 1847; and only 31,963 bushels of peas passed through the Dismal Swamp Canal in the year ending September 30th, 1847. At New Orleans there was received in the year ending 1st September, 1846, only 16,248 barrels of beans, and in the year 1847 only 18,201 barrels. No peas are mentioned in the tables of imports; and as none passed through the Pennsylvania Canal, this must be the sum total of beans which reached tide water from the entire Valley of the Mississippi, except that it is barely possible that a small portion of the quantity received on the Hudson River, might have went from Ohio. Some peas were no doubt shipped coast wise from the Carolinas, but we have met with no statistics showing the quantity shipped from that region. From the report of the Secretary of the Treasury, it does not appear that any beans or peas were exported in 1847; and when all these facts are considered, we cannot suppose that the entire quantity of beans and peas which reach tide water annually, can exceed 500,000 bushels. The principal district in the Union where peas are produced as a field crop, is that region east of the mountains, extending from the Potomac to the Mississippi, and here they are grown principally for stock, and are mostly left ungathered in the field, where they are consumed, and consequently cannot be considered as of more value than an equal quantity of corn. Hence, if we should suppose the crop amounted to 5,000,000 of bushels, under these circumstances 75 cents per bushel would be a high price, including that part which had been gathered. We find the average price of beans received at St. Louis, this year, to be 42½ cents; but if we estimate them at $1 00 per bushel, then we have, according to our estimate, 2,000,000 bushels of beans, at $1 00 per bushel, worth $2,000,000; and 5,000,000 bushels of peas, at 75 cents per bushel, worth $3,750,000—total for beans and peas, $5,750,000, an amount that is less by $49,250,000, than they are estimated by the commissioner of patents.

In this same table, the quantity of hemp and flax is estimated at 116,207 tons, valued at $150 per ton. In the tabular statement of the crops of 1847, the hemp crop is estimated at 27,750 tons; this would leave the quantity of flax, 88,457 tons. Now, we cannot find the article of flax mentioned in any commercial table that we have been able to procure; nor do we believe that it is produced to any considerable extent, as an article of commerce, in any part of the Union; and but few individuals produce it in any part of the country with which we are acquainted, even for domestic purposes. The plant is grown in Ohio, and in, perhaps, some other States, for the seed; but little or no use is made of the bark. Any estimate, therefore, which we could make in regard to the quantity of flax produced annually, would be nothing more than a guess at the amount; but we

will mention a few facts found in the census of 1840, that will prepare the reader to make great deductions from the quantity above stated. In that document, St. Louis county, in the State of Missouri, is returned as producing 9,905 tons of hemp and flax; about 3,000 tons more than is now produced of hemp in the whole State. We did not then reside in St. Louis; but, from inquiries made of farmers in this county, we do not suppose that it ever did produce one hundred tons of these articles, in any one year. Lee county, in Virginia, is reported as producing 10,468 tons. We have made no inquiry in regard to the products of this county; but, judging from its place on the map, we do not imagine that it produces more of these articles than does St. Louis county in Missouri. Several other errors in regard to hemp and flax are to be found, as we believe, in the census of 1840, and it is remarkable that they have not been observed by the commissioner of patents; for it would seem that any one at all conversant with the products or statistics of the country, would, at the first glance, have suspected that there was a mistake in the amount. Indeed, we do not believe that there is 1,000 tons of flax produced annually in the United States; and we have shown in the last number of the Western Journal, that the estimate of 27,750 tons of hemp, was too large. But, setting it down at that, and estimating it at $85 per ton—which is quite as much as it is worth to the grower—and the total value is $2,358,750; and, add to this $150,000, the value of 1,000 tons of flax, and the whole amount, according to our estimate, is $2,508,750—less by $14,922,300 than the estimate of the commissioner of patents. We have carefully examined the prices current in St. Lonis for the present year, and estimate the average price of hemp in this market at $86 16 per ton; the prices in Louisville may, perhaps, have ranged a shade higher, but we feel satisfied that the average value to the grower is not more than our estimate.

The crop of sugar is estimated at 324,940,500 pounds, valued at 6 cents—making a total of $19,496,430. By reference to a statement showing the extreme prices of fair and prime sugars at New Orleans, from November, 1847, to August, 1848, inclusive, it appears that the highest rates were in the months of November and February; in November, the extremes are stated at from 3 1-4 to 4 1-2, and in February from 3 7-8 to 4 1-8. Except in these two months, 4 cents was the highest price reached; and even this point was not attained after the month of March. From consulting the statement which will be found in this number, and to which we refer the reader, we are of opinion that the crop of 1847 has realized to the grower but little if anything over 3 cents per pound. Nor has it much exceeded this for several years past; and we cannot imagine where the commissioner found his data for his estimate, unless it was in some country store far in the interior, and distant from navigation or wagon roads. Estimating the crop at 3 1-2 cents per pound, it amounts to $11,372,917—less by $8,123,513 than the estimates of the commissioner of patents.

Straw, chaff, and the residuum of the crop, are valued at $74,000,000. The

commissioner makes the following remarks in reference to this item: "The estimate for straw, &c., is made upon the following basis, viz: $4 worth of straw is allowed for every 30 bushels of English grain, and $1 of fodder for every 20 bushels of Indian corn. An intelligent farmer of Delaware, (John Jones, Esq.) estimates $8 worth of straw for every 30 bushels of English grain, $1 of fodder for every 10 bushels of Indian corn. In the French tables, the straw and residium are put down at about 11 1-2 per cent. on the whole value of agricultural products, and products of the forest. A less proportion is allowed for pasturage after harvest, than in the French tables."

Now, it must be borne in mind, that the value of these articles, as well as that of almost every other thing, depends upon the demand, and use that is made of them; and hence, in a very large portion of the United States, straw, chaff, and the residuum of the crop, can scarcely be valued at any price. In many of the western States, fodder is rarely made of the blades of Indian corn, but is left to waste on the stalk in the field. In many parts of the west, grain itself will scarcely bear transportation to market, and being more convenient for feeding stock, few farmers will give themselves the trouble of preparing straw and chaff for food; nor are these articles much used, even for the purposes of manure. Straw, chaff, &c., are doubtless of great value in countries where the prices of land and grain are high as in Great Britain; but where corn is worth only 10 cents, and wheat from 30 to 50 cents per bushel, straw and chaff can scarcely be classed with articles of value. It would be about as rational to estimate an acre of forest in South Missouri by the value of a like quantity in England, as to estimate the value of straw and chaff here, by their value in that country. And for these reasons, we conclude that the estimates of the commissioner are at least double the true value of these articles.

By adding up the deductions which we have made on seven articles embraced in the table, we find them to amount to $190,770,913, a sum nearly equal to one-fourth of the entire estimate of agricultural products. There are other items in the table, that are doubtless estimated too high; but for some of these, the commissioner should not be held responsible. The article of cotton, for instance, is estimated at 7 cents; this was a reasonable estimate in November, 1847, but the price declined greatly afterwards. Indeed, no reliable estimate of the value of a crop can be made until it is consumed, or nearly so; and for this reason the final estimates should not be made up until the close of the next year. This would afford time to ascertain the quantity, as well as the value, with much more accuracy, and we trust that Congress will take the subject under consideration, and so direct in future.

Before dismissing the subject, we desire to express our full conviction, that the duty of collecting and arranging statistics, ought to be separated from the duties of the patent office, and that a separate bureau should be established for this purpose. Such a department would properly embrace the entire subject of our internal

commerce; and if confided to the care of a competent individual, would do more to enlighten both Congress and the people, upon the subjects connected with our true interest, than all the books that have ever been written on political economy. By making known our own resources, and exposing the true nature and importance of our internal commerce, the people will learn to appreciate foreign commerce at its true value, and perceive the folly of looking to that as the source of individual or national wealth.

In conclusion, we would remark, that if any should doubt the fairness of this review of the patent office report, we recommend them to examine the commercial and agricultural statistics of the country, and then, we think, they will become satisfied that our estimates of the quantity and value of the agricultural products of the country, are, generally, above rather than below the truth.

ART. III.—EDUCATION.

By John H. Tice, President of the Board of Directors of St. Louis Public Schools.

There is no subject that creates an interest so universal, elicits so many essays, furnishes so many themes for declamation, and paragraphs to embellish annual messages, as education. Yet, notwithstanding this universal interest in and general homage paid to it, it would be difficult to name a subject that has elicited so much attention, and has yet been so barren of results. In the thirty States, that compose our confederacy, with a few bright and honorable exceptions, nothing has been done for general education, that deserves attention, either at home, or abroad. Why is this? It is certainly not because public sentiment is not impressed with its imperious necessity, for in this, all are agreed. Painful as it is, we are compelled to ascribe it to the money-getting, and money-loving propensities of our people; and that in the ceaseless conflict between our tax-resisting propensity, and parental and social duties, the former too generally overslaughs the latter. Our prison and penitentiary statistics annually furnish us the startling facts that nineteen-twentieths of their inmates can neither read nor write, and that crime, vice and ignorance are inseparable companions; yet our men of substance while they willingly pay taxes to support prisons and the gallows to punish vice, are unwilling to pay taxes to support schools and academies, to educate and preserve from vice and

crime the rising generation. As a matter of economy, then, each community ought to educate its own children. Because at some time a tax must be paid. Better it should be done while innocence and an unseared conscience are yet their portion, than when society has consigned them to an outlaw's doom, or a felon's cell.

But upon us, as citizens of this great and growing Republic, whose foundation rests, and whose future prosperity depends, upon the virtue and intelligence of the people, as patriots, philanthropists, and christians, the education of all the children is imposed as a duty, from which no power can absolve or relieve us. No government can remain pure and stable, that is administered and directed by vicious men either individually or collectively. The evils over which the philanthropist weeps and the christian grieves will never abate, but ever rise mountain high in every community where ignorance predominates, and vice and folly rule. Harmony in social and individual life, can only be produced where an enlightened intelligence presides over, and directs the springs of social and individual actions. An enlightened mind only can comprehend the extent of its own rights and the sphere of its own duties. Hence the necessity of education. But man is a social as well as an individual being, he has duties to perform in relation to others as well as in relation to himself. In these, if not under the direction of an enlightened mind, and cultivated understanding, he must necessarily be under the control of his individual passions and prejudices; hence all the wrongs, bickerings and discords of society. But in this country at least, great and imposing duties have been added; here not only man has committed to him, his individual and social destiny, but the destiny of a Republic already embracing thirty States, and extending from ocean to ocean,—rivalling in extent either the Grecian or Roman empire. This Republic is to be directed and swayed by the intelligence of its citizens. The understanding of all its nicely adjusted powers, the knowledge of the relation between the National and the State governments, all its internal and external policies and dependencies must be comprehended and traced out, in order to maintain its complicated machinery in harmonious motion. To take a comprehensive and enlarged view of all these, a greater degree of cultivation is necessary; and it is only by understanding the whole

machinery of our social and political system, that it can be carried successfully forward.

But our design is not, at present, to elaborate the necessity nor the advantages of education. Nor is it necessary. If we take as any indication of public sentiment, the high-wrought and fancy-colored views which embellish the effusions of the press, the pulpit, the legislative hall, and the executive chair, the public mind is already made up, both as to its necessity and advantages; and nothing remains but to provide the machinery, or the ways and means, to put an efficient system of education into operation. To this task we now address ourselves. But before we do so, a brief review of the different systems of education in vogue in different States, is necessary, that, if preference be given to any system, it may be to that which has stood the test, and produced the most happy results, wherever tried.

Assuming, therefore, that some public system is necessary to educate the rising generation, and qualify them for discharging every social and political duty incumbent on them, as individuals, or as citizens, our inquiry is, what ought that system to be? This question can only be answered by solving the collateral question, what system will effect the object in view? But this latter we are unable to answer, until we have determined what we wish to effect. If we wish to have no greater diffusion of intelligence, nor more thorough training or instruction, than is now afforded children by the means or inclination of every individual parent, then we have nothing to do; for everything that we desire is already accomplished. But, no one believes that the education furnished by this means is sufficient. Sad experience has forced the conviction upon every mind, that something more has to be done, or else a large portion must forever remain ignorant of even the rudiments of learning, ready to be used as implements to effect the objects of every unprincipled charlatan, impostor, or demagogue. All seem then agreed, that sufficient education should be furnished to each individual, to enable him to think, judge, and act for himself. This, then, is the object. Now let us see the various modes proposed to accomplish it.

The first mode is, to leave the education of the children of such parents as are able to bear the expense, to the parents themselves;

and, for the education of such as are not able, the State is to provide the means. That is, provide a fund for the education of indigent children.

The second mode is, that the State furnish the means of educating partially all children, irrespective of the condition of the parents; and whatever else may be needed or expended, to be raised by rating the scholars of such parents as are able to pay.

The third mode is, by furnishing education entirely free to all, without respect to age, sex, or condition, by providing sufficient means through the combined action of the State, county, town, or district authorities.

To determine which of these modes should be preferred, we must look at the practical operation of each, wherever adopted.

Of the first mode, though in operation in several States, we have no data at hand, to judge of its feasibility and utility, except that furnished by the State of Virginia. If the result is the same in other States, all we have to say is, that the sooner the plan is abandoned the better.

We have before us the report of J. Brown, Jr., Superintendent of the Literary Fund of the State of Virginia, for the year 1844, from which we glean the following items:

The State provides *free* schools only for her *indigent* children.

Maximum of literary fund appropriated by law, for this purpose, is $70,000. Five per cent. of which is to be expended for books.

Number of free schools returned during the year, 3,506.

Number of *indigent* children in the State, 53,155.

Number returned as attending the free schools, 28,369.

Leaving the number of children unprovided for, 24,786.

The average attendance at school of those returned, is 59 days for each child. This is equivalent to about 10 weeks of schooling in a year. Leaving 42 weeks vacation in a year.

The practical result then in Virginia is, that of 53,155 children, 24,786 never attend school at all, and the remainder, 28,369, attend only 10 weeks per annum. So much, then, for the schooling. Now let us see the character of the schools. We extract the following, as a specimen, from the report of the commissioners of Marshal county:

"In most cases, the children improve very well while at school

but the principal part of the money is expended by the first of April, and during the best half of the year the children are obliged to stay at home, many of them forgetting almost all they had learned. Moreover, men who are qualified to teach, and who are willing to make it their business, cannot get a support here, and are under the necessity of going to some other State, whose funds are more ample. This leaves us, (with some worthy exceptions,) men destitute of the qualifications, many of whom cannot even write their own names in a legible hand."

The commissioners of Orange county say:

"Teachers of good morals and qualifications are preferred," leaving of course, the inference, that when such cannot be had, the immoral and disqualified are employed. Some of the county committees speak of the teachers as "SOBER." Such is the gloomy picture of public education in Virginia. That happier results will follow the same system elsewhere, we cannot expect, because the very idea of being a pauper, and treated as such, is revolting to every man, woman and child of sensibility. However kindly and humanely the views of those who advocate the poor system may be, their labors must be in vain as long as humanity remains what nature has made it. As long as there is a manly feeling, an ennobling thought, the individual will shrink from personal degrepation.

The second mode of education, is where the State furnishes a part of the means, and where the deficit is made up by rating the scholars in attendance, whose parents are able to pay, demands our consideration next.

For the practical operation of this system, we refer to the State of New York. We do so not for the purpose of finding fault, or disparaging the liberal and enlightened policy pursued by that great State in relation to public schools. Her efforts to educate her children, merit the commendation and imitation of all her sister States. Originally a borrower from Massachusetts, she has since repaid the latter, and with interest. The system of district school libraries and teachers, institutes which Massachusetts has recently adopted, are the offspring of New York. In the organization of her common school system, embracing as it does, State, county and district organizations, so admirably combined as to diffuse energy and vitality to her remotest borders, she stands without a parallel. With a system of organization

so perfect as to command the admiration of all who have examined it, whatever system for the support of schools she may have adopted, that system must there present its most favorable results. It is for this purpose that we have selected her for the illustration of the practical operation of the rating system.

We wish our limits permitted us to give an extended view of the New York system. But as we are cramped for space, the leading features must suffice—which are necessary to be known, in order to understand the practical operation. The capital of the State School Fund, according to the last annual report of the superintendent of common schools, is $5,337,181 14; the annual income, $296,554 21; which is annually apportioned by the superintendent among the several towns, cities and villages of the State, according to the ratio of population, respectively, at the last preceding census. [See Acts of 1830, chap. 320, § 3.] Except $55,000 appropriated to the purchase of district libraries, [vide Acts of 1846, chap. 186, § 136,] $10,000 for support of a normal school. The Board of supervisors of each county shall annually cause to be assessed and collected in each county, an amount equal to the apportionment received from the State. [Vide Acts of 1830, chap. 320, § 2.] Whatever deficit there may be to pay the salary of the district teacher, is to be made up by the trustees of that district, by rating the scholars in attendance in said school. From which rate the trustees have power to exempt, either wholly or in part, indigent persons. To make up a deficit in collection of rate bills, trustees are authorized to levy a tax, as also for building school houses, fuel, school apparatus, &c. [See Acts of 1846, chap. 186, § 82.]

It will be seen from this that the New York system is not purely the rating system, but a combination of the rating and free systems; and, as a matter of course, the result is more favorable than it would be under the pure rating system. But we must hasten to give the operation of the system. The sums received and applied in the year 1846, were as follows:

Annual appropriation of State Fund, - - -	$220,000 00
Amount raised by tax levied by Board of Supervisors, -	220,000 00
Raised by special statutes, in cities, &c., having free schools, -	155,974 20
Amount received on rate bills, - - - -	462,840 44
State appropriation to increase district libraries, - -	55,000 00
Amount raised by supervisors for same object, - -	38,791 29
Total, - - - -	$1,152,605 93

The whole number of children in the State, returned as being of educable age, i. e. between the ages of five and sixteen, is 703,399. The whole number of children of all ages, taught some portion of the year is, 748,387. Of those so taught, the returns show the following as the time of their attendance at school:

Those who have attended less than two months, - - -	202,999
Those who have attended two months and less than four months, -	196,198
Those who have attended four months and less than six months, -	153,513
Those who have attended six months and less than eight months, -	102,493
Those who have attended eight months and less than ten months, -	50,454
Those who have attended ten months and less than twelve months, -	23,548
Those who have attended the whole year, - - - - - -	23,211,

The superintendent, in his annual report, dated January 5th, 1848, in view of these facts, makes the following remarks: "It certainly appears somewhat remarkable that, with all the advantages our system presents, not *one-seventh* of the children reported between five and sixteen years of age, attend the schools even six months."

"The city of New York, with her admirable system of *free* schools does not present to us this unfavorable and humiliating picture." There are other cities in the State, where the schools are *free*, presenting the same favorable results.' " These other towns are Brooklyn, Buffalo, and Rochester, the town of Williamsburgh, and the village of Poughkeepsie.

The contrast of the free system in the city of New York with the rating system in the State, gives the following result:

The rating system in the State does not secure the attendence of one-seventh of the children of educable age at school for even six months; while the free system in the city of New York secures the attendance of one-third of the children of educable age during the whole year.

The returns for the city of New York, show the number of children of educable age to be - - - - -	78,000
The whole number taught during the year, - - - - -	76,985
The number attending school during the whole year, - - -	28,075

The superintendent, in his report, page 56, remarks: "The extension of *free* schools, in the state, ls progressing moderately, and laws are passed nearly every session of the Legislature, for their establishment in certain villages and districts." On page 61 of Report, he recommends the levying of an annual tax to establish and support free schools in every district, for six or eight months.

The evils of the rating system, as pointed out by the superintendent on page 58 of report, are, litigation and contention about compensation of teachers—breaking up of schools by withdrawal of children—and non-attendence of children, under apprehension, on the part of parents, that the rate bills will be unreasonably high.

We must now, as briefly as possible, state the practical operation of the free school system of Massachusetts, and then close for the present.

In the State of Massachusetts, the children of educable age, i. e., from 4 to 16, was, in 1846,	203,877
The number attending summer schools,	153,459
The number attending winter schools,	174,270
The average attendance for summer and winter,	119,270
The population of the State was 737,700. The taxes levied and collected by the different towns, to be expended within their limits, was	$611,652 13
Income of local funds,	15,516 95
Amount of voluntary contributions,	38,957 97
Amount of surplus revenue of State Fund,	28,392 99
Total,	$694,020 04

The amount expended by the State for every child of educable age is $3 39. The amount paid per head on average attendance, $5 83. In the State of New York the average expended for each child in the State, is $1 63. The average attendance in New York being about 260,000, would make, per head, about $4 40. In Massachusetts the average attendance at school, to the number of children in the State, is as 3 are to 5, or 60 per cent. In New York the average attendance is as 13 are to 35, or 36 per cent.—showing 24 per cent. in favor of the free school system.

If the educable age in the several States be taken into consideration, that of Massachusetts commencing at 4, and that of New York at 5 years, the difference would be still greater in favor of the free school system.

Having, therefore, established the superiority of the free over every other system of education, we close this article by the following reflections:

The education of the coming generation is the great work and concern of the present age. Upon the extent, fidelity, and thoroughness it is accomplished, depend not merely the improvement of the future, and the realization of the glorious hopes we have cherished, but the preservation of every valuable institution that we have, ourselves, either established or inherited. Here, then, is work for all heads and hands, and commends itself alike to the patriot, philanthropist, and Christian. The politician and patriot, who labors to produce social equality, order and harmony—the philanthropist to eradicate evil, and the Christian to introduce the millenium—will find here the only field they can cultivate, from which they can reap the fruits, to whose production they have devoted their lives. Let

them see to it, that it remain not a waste, producing only useless and noxious weeds. Casting our eyes over our Union, and seeing the magnitude of the work to be done, and the paucity of the numbers engaged in it, we are almost ready to despair—"surely the harvest is great, but the laborers are few." But we will not despair. There is too much of nobility and disinterestedness visible throughout humanity, for that. That charity which embraces the globe, and devotes wealth and life to the enlightenment of the heathen, will yet redeem itself, by preventing our children from sinking into worse than heathenish darkness. Aye, at home is its proper place to begin—its point from which to spread, in concentric circles, until it embraces entire humanity. Our own and our neighbor's children must first be redeemed from vice, ignorance, and degradation, and then we can extend our sympathies, until they embrace the antipodes.

We may not be able to accomplish all that we desire; and the object we aim at may be unattainable. But the work of humanity is, to struggle after the unattained, and perhaps unattainable. Let no partial or even total failure then discourage us, but rather stimulate us to greater exertions. Consoled with the reflection that, though in morals, as in medicine, no universal prophylactic has yet been discovered, and that there may be none, yet that something can be done—that for some evils, as well as diseases, there is a preventive, and that those which we cannot prevent, we can, at least, partially check and modify.

ART. IV.—CALIFORNIA.

We have been favored by a friend, with the "*California Star*," published at San Francisco, dated April 1st, 1848. The matter in the number before us, seems to have been selected for the especial purpose of being forwarded to the States east of the Rocky Mountains, by the express that was then about to depart. The editor says:

At the suggestion of citizens of this and neighboring towns, we have, within a week of "active duty," imposed upon us by the fitting out of our express for the United States, hurriedly gathered *leading facts*, representative of California, and voluntarily aided by Dr. V. J. Fourgeaud, (author of "Prospects of California," appearing to-day complete,) we present these, in the form of the Weekly Star, with a supplement. It was, we believe, the general wish, that the amount of matter made up by our combined efforts should be both instructive and interesting to our eastern friends, or residents of any part of the globe. Within the limited time granted us, we have endeavored to accomplish this; if we have succeeded, and it proves acceptable, our diligent endeavors are repaid, and we rest abundantly satisfied.

The article above referred to, under the head of "Prospects of California," fills about six columns of the paper, and contains, perhaps, more reliable facts in relation to the practical resources of the country than can be elsewhere found in the same compass; but it is quite evident that all the disadvantages and objections to the country, have escaped the observation of the writer; and this remark is applicable to almost every thing which the paper contains. Although every statement may be strictly true, yet this mode of describing the country is greatly to be condemned; for no one can form a correct opinion of its value, without being apprised of such facts as are calculated to qualify the advantages, and such do, and must exist, every where. The paper is doubtless designed to induce emigration, and although we should be pleased to see California settled with a population that would develop its rich and varied resources; yet we should regret that any of our people should remove thither under the influence of opinions formed upon an imperfect, not to say a false description of the country; for, an account setting forth in a favorable light all that is attractive, and taking no notice of defects, is calculated to deceive and mislead the judgment. We cannot consistently give place to the "Prospects of California," and other articles descriptive of the country entire, but shall extract such parts as are best calculated to give a general idea of its agricultural, mineral and mercantile resources.

AGRICULTURE.

Under this head we place our extracts touching the character of soil, the vegetable productions in general, and also the climate:

Agriculture, manufactures, and commerce are the three fruitful sources of wealth, and no where, we are prepared to show, can these branches of human pursuits, with their different subdivisions, offer stronger inducements and greater advantages.

A cursory glance over the region known as "Upper California," is sufficient to prove that no other country possesses a more varied soil, or one capable of producing in greater abundance, all vegetable substances. Where will you find richer lands than those which border the Sacramento and San Joaquin? These can be drained at a comparatively small expense, and all the products belonging to a temperate climate may be furnished by this region alone. Before many years, levees will be constructed on the banks of these rivers, and the vast track known as the "Tulares" will be cultivated, and rice constitute our principal article of export. It is well known that the swamps of Carolina were considered valueless until converted into rice fields. This grain was first raised on the uplands, but

was afterwards transferred to the low grounds which border the rivers, on account of the facilities furnished for irrigation by the rise of the tide. These swamps now constitute the principal wealth of Carolina. The climate of the Sacramento and the San Joaqin is admirably adapted to the culture of this cereal.

Wheat, corn, rye, barley, oats, potatoes, beans, garden vegetables, in a word, all the products of the happiest portions of the globe, can be raised in California, with as little difficulty as any where, and no where will they pay the agriculturalist better for his labor. Ride over the fertile valleys of the Upper Pueblo, Napa, Suisun, and Sonoma, and you will at once perceive the advantages of these localities. Ere long, when these beautiful valleys become thickly settled, they will represent, with their climate of eternal spring, those rare spots, which when seen, are never left without regret, depicted by poets as earthly paradises.

The progress of agriculture has ever been closely connected with the general history of every country. The system heretofore practised in California, and to which holders of immense tracts of land confine themselves, that, we mean, of rearing large flocks and herds, allowing them to wander about and consume the natural products of the soil, was the first step towards permanent settlement and cultivation. This practice is, up to this hour, generally followed; but as the population increases, and civilization progresses, land will become more valuable and the wants of the inhabitants more numerous and varied. Farms will be established throughout the territory, vegetables of every variety, and fruits of the choicest kinds, will then become abundant. Let no one complain that there is a want of these luxuries at present. The answer is simple. They have not hitherto been planted. Even in California, no fruit can be reaped without labor. Examine the beautiful garden of Capt. L., in the heart of San Francisco, where the soil is as bad as can be found any where in this country, and you will be astonished to learn that these fifty varas square of land, furnish not only an abundant supply of vegetables for the principal hotel of this place, but enough also to accommodate several private families.

Shall we speak of our vines,

> "Blushing with Bacchant coronals along
> The paths, o'er which the far festoon entwines."

Our grapes are unsurpassed by any we have eaten in the vineyards of France, and every judge of wine must confess, while enjoying a goblet of the delicious beverage from the Pueblo de los Angeles, that it is seldom excelled, even by the far-famed Port. We were much amused a few days ago, at an estimable friend, who from the opportunities he had had, declared with the pertinacity of a connoisseur, that he could at once distinguish California from Port wine. A good specimin of each was presented. The wine from our vineyards was instanter pronouncee Port, and vice versa. We had a laugh at our friend, who forgot his mistake over a bottle of real California.

Oranges, olives, and different varieties of melons, apples, peaches, apricots,

nectarines, pears, plums, cherries, almonds, quinces, mulberries, raspberries, figs, pomegranates, etc. etc., either grow wild, or are easily cultivated in California. A year or two ago, we have been informed, Capt. Sutter found a few cotton seeds among others which he had; they were thrown into the ground and no further care taken of them. They produced, however, vigorous plants, and at the proper season yielded a fine specimen of cotton. The sugar cane is now reared in California, but only for immediate use; we hope that ere long it will be extensively cultivated, and that enough of this valuable plant will be converted into sugar to supply the country. We have conversed with a manufacturer of tobacco, residing in San Francisco, who assured us that when he left his farm up the Sacramento to join "the volunteers," he had sown some tobacco seed; when he returned, the season for gathering it had passed—in fact, most of it had been stolen by the Indians, but he succeeded in finding a few leaves, which he made into cigars—pronounced by himself and other good judges, equal to the best Havana. We are happy to learn that our informant is about to engage in the cultivation of this plant. Hemp and flax also, we are convinced, will soon be raised in considerable quantities.

Another writer says:

In papers late from home, I perceive quite a false story told of our California climate, by some volunteer writers. They say it is a land of fogs; if so, Italy must be a land of fogs too, and far from being so delightful an abode as tourists tell us, since intelligent travelers over both say there is a strong resemblance between the two. Immediately on the seaboard in some places—say San Francisco for one—there is, during a part of the year, though only a portion of each day, much wind and fog, but in the interior little. In this vale, (the loveliest of the land,) though immediately on the bay, and but twenty-five or thirty miles from the ocean, there is nothing of the sort to object to.

The winter past has mostly been gentle, bright and balmy, yet rain sufficient for the farmers. Snow in the lowlands never falls; frost and wafer ice, frequent of a morning, but not preventing the grass from growing, and a few flowers budding all winter long. A peach orchard in our village, bloomed the end of January, and is just dropping its blossoms with the fruit uninjured so far, (20th of March.)

Grass is now knee high in many places, and gardens green with their productions, though many culinary vegetables may be raised the year round.

I cannot assert as a fact that all the grains grow well, because many have never been tried, though to judge analogically and inferentially, I should undoubtedly say they would, and that most excellently. Wheat succeeds admirably, yielding neither in quantity or quality to Genneseean or Egyptian growth.

Sheep are very prolific, have no diseases, and here is just the climate and pasturage on our hills and mountain sides, for growing the finest merino and Saxony fleeces, Old Spain and New Holland not excepted.

I have omitted till last, mentioning the great staple production, this land will ere long boast of in the horticultural line, and challenge any rival elsewhere, to beat her in raising—grapes and wine. 'Tis emphatically the land of the vine, and only tell an Italian or Madeirian that we have mild winters, dry, hot summers, volcanic soil, lying in numerous hills and small valleys, and exposed to a constant fanning sea breeze, when it will take little time for him to decide with me. The summers are long and dry, not a cloud for months to be seen in the sky. Late crops, however, fruits, vegetables, &c., may be raised all seasons, by irrigating.

A cloudless sky for months during summer, and the necessity of watering both fruits and vegetables, which do not mature in spring, are important objections, and to us it would seem that the raising of corn, sugar cane, and indeed, all summer crops, (except to a very limited extent,) must be confined to such locations as can be irrigated from running streams. And this we suppose to be the cause of the great difference between the price of wheat and corn—the former being quoted at 50 to 75 cents, and the latter at $1 50 to $1 75 per bushel.

We extract the following descriptions of different parts of the country:

THE GREAT SACRAMENTO VALLEY

Is a favored land, and the prodigal hand of nature has enriched it with every requisite to constitute an inheritance of freemen, and here profusely poured forth her choicest blessings. Let us glance at its immense wealth only, as it is every day revealed.

The valley of the Sacramento is two hundred and fifty miles in length, and from twenty to forty miles its average width. The great river rolls through its heart, and its many tributaries impart to the soil a never failing richness. Ascending the main stream, the valley will, gradually as your advance into its bosom may be, open broad, level, and more beautiful. The tributaries of the Sacramento are skirted with timber; the oak, live oak, sycamore, black walnut, the maple, alder, and the cottonwood, fringe each mountain stream, and form dense forests as you approach the north.

To its value, as a finely timbered country, let us add the important discoveries made of late in this source of wealth. A prolific growth of white and yellow pine, first in quality, has been recently found to extend along the range of the eastern Sierra Nevada, easy of access, and in many places, not distant three leagues from the Rio Sacramento. The chesnut is found along the base of the western range of mountains, and grows to the height of sixty or seventy feet without a limb. With fine streams of water near by, these discoveries may be entitled to the highest consideration of our countrymen.

The Rio Sacramento is navigable to the head of the main valley.

It has a mine of gold, and a probable estimate of its magnitude cannot be derived from any information we have received. It was discovered in December last, on the south branch of the American Fork, in a range of low hills forming the base of Sierra Nevada, distant 30 miles from New Helvetia. It is found at a depth of three feet below the surface, and in a strata of soft sand rock. Explorations made southward, the distance of twelve miles, and to the north five miles, report continuance of this strata, and the mineral equally abundant. The vein is from twelve to eighteen feet in thickness. Most advantageously to this new mine, a stream of water flows in its immediate neighborhood, and the washing will be attended with comparative ease.

Quicksilver.—There has been found a vein of this abundant mineral, and within the range of hills in which the mine of gold is situated, and said to be not inferior to any yet opened. Quicksilver has also been discovered in the extreme northern part of the valley.

Of Salt.—We were yesterday shown a specimen of salt taken from a large bowl spring, situated twelve miles west of the Sacramento river. It is of fine quality, and can be easily rendered equal to any imported.

The wealth of this great valley may not be summed up in *words*. The soil has been proved rich, the climate healthy, notwithstanding the unfair circulation of reports contradictory. With all the sickness of the last summer months, (and it is admitted that such a prevalence of fever has not been known for seventeen or eighteen years, and which is attributed to the great overflow of the Sacramento,) but one death occurred.

THE PUEBLO VALLEY.

This is one of the most beautiful valleys in California. It is about five miles wide, and forty-five miles in length, well watered, and possessing all the elements of future prosperity. It has already made great progress in agriculture, and boasts several fine vineyards yielding delicious grapes, and extensive orchards, containing some of the choicest varieties of fruit.

The Pueblo San Jose is about sixty miles by land from San Francisco—being situated on the main road to Monterey, Los Angeles, and San Diego. The soil, after leaving San Francisco about five or six leagues, is extremely rich, and continues to improve as far as the Salinaes Plains, which are situated in the neighborhood of Monterey. Some of our finest farms are on these plains. Among other advantages, the Pueblo San Jose possesses almost an immediate water communication with the Port of San Francisco. Vessels of sixty tons burthen can pass over the bar at the mouth of the Estero, with perfert safety, at any time of the year. The distance from the landing to San Francisco, may be estimated at forty-five miles. The passage up from San Francisco is often made in four hours by launches, and steamers could certainly accomplish it in two hours. The river passes through the most delightful part of the valley. Several mills have been

erected upon its banks, which are now in full operation. At certain seasons, the waters of this river abound with salmon trout, and on its banks thousands of wild fowl are collected.

NAPA VALLEY.

Nature has lavished some of her richest blessings on this fine valley. For beauty and fertility, for its mineral and vegetable wealth, it is known and appreciated throughout California. Some of our most substantial farmers have located there, and large crops of excellent wheat are annually reaped. Mr. Yount estimates the average yield of his land at thirty bushels per acre. It has, however, occasionally amounted to one hundred bushels. Mr. Y. sowed ten acres with wheat, from which he obtained two hundred and fifty bushels. The ensuing season the same land yielded the same quantity of grain, without any cultivation, and without a single seed being sown. This is a remarkable fact, and we are informed is generally the case throughout the country. Mr. Yount has been fourteen years a resident of California, and assures us that he has not, during that time, seen sick wheat, and that his crops have been but seldom injured by mildew. Cheat or rye grass has never been found in this country.

The soil is well suited to the growth of corn. By breaking the ground in February, and planting in April, good crops may be obtained without care or irrigation, especially in the lowlands. Forty-five bushels to the acre is about an average crop. The Irish potatoe is easily raised, and yields fully as much as in the United States. The potatoes produced are large, healthy, and perfectly mealy.

Mr. Y. produced from his garden a radish fourteen inches long, and fifteen inches in circumference. Seven men breakfasted on it, and found it well flavored. Mr. Y. has one hundred peach trees on his farm, also apples, olives, apricots, pears, and the finest quality of grapes. All produce abundantly. It is Mr. Y.'s opinion that oranges would flourish here as well as other fruits.

FORK OR KING'S LAKE.

There is a vast tract of land extending from the 35th to the 37th degree north latitude, between the coast range and the Sierra Nevada, represented by those who have visited it, as one of the lovliest and most fertile regions they ever saw, abounding with beautiful streams, emptying into a large lake, known as Fork or King's Lake. The country, it is said, can be compared to a vast garden, covered with a variety of wild flowers, of all colors, and well provided with timber. The springs or head waters of the San Joaquin, are not far distant from this place. The Indians inhabiting that region are the only obstacle to its immediate settlement.

SANTA CRUZ.

This is a prosperous lumber market, and the first on the California coast, situated, by sea, 90 miles south of this place, and 25 miles due north from Monterey. A level tract of land, fifteen miles in length, and averaging six in width, with a

soil which will grow the choicest products of the interior country, and a climate unequalled by any of the coast, it must soon, under the renovating hand of American industry, become a populous and important section of Northern California. Here the coast loses its ruggedness, the hills retire, and an indentation sufficient for vessels to remain at an excellent anchorage nine months throughout the year, affords every facility for maintaining an easy trade with our own and foreign ports. The timber growing qualities of the soil of Pueblo de Santa Cruz, must ever attach an importance to that region, and prove its first source of wealth. The never failing red-wood, the oak, two different species of pine, the sycamore, cotton-wood, laurel, fir, *mattaroni*, (said to compare with the American cherry, and excellent for cabinet work,) grow in great abundance. Very eligible sites for mills—fine water power throughout the year—six lumber mills are already in operation. Exportations have taken place from this point to the Islands of the South Sea, and ports of the Southern coast. We were credibly informed that not less than 1,700,000 feet of lumber were sawed by five of these mills during the last summer season.

SUISUN VALLEY.

This is, probably, one of the most beautiful valleys west of the Rocky Mountains; very productive, and susceptible of the highest cultivation. There are about eight leagues of land in the valley proper, much of which is already surveyed, and for sale in sections, by Gen. M. G. Vallejo, a very liberal and high minded Californian, who is disposed to afford every facility to actual settlers. This valley commences within about five miles of Benecia City, and at the other end opening into the great valley on the west side of the Sacramento river, making a fine and level road for near one hundred and seventy-five miles, through a very fertile country, crossed by three large streams, and numerous small ones, suitable for navigation and machinery.

CLEAR LAKE.

This is a fresh water lake, about seventy-five miles long, and eight or nine wide. It is on the top of the range of mountains between the sea coast and the Sacramento, about one thousand feet above the level of the sea, about sixty miles north of Benecia City. There is a wide and very fertile valley extending entirely around this lake, covered with the largest burr oak and other timber, while the hills are covered with the best pine and red wood. The valley around this lake is thought to be abundantly sufficient to supply, at least, ten thousand inhabitants; at present unoccupied, except by Indians, who are entirely inoffensive, and would, if properly treated, perform much of the labor of opening farms. There are many streams emptying into this lake, which will afford the finest water power for manufacturing lumber, flour, &c. A number of specimens of lead, copper, sulphur, and copperas ores, have been shown, which were found in the mountains near the lake.

On the south side of the bay, opposite Benicia City, are high rolling hills, covered with timber, which widens off into an immense number of large valleys and plains, very fertile, and well watered. One of these valleys extends, in almost a direct line, to the Mission of San Jose, making a firm and level road from Benicia City to Monterey, with the exception of the gap of San Juan mountain, within thirty miles of Monterey.

MINES AND MINERALS.

It would be utterly impossible at present, to make a correct estimate of the immense mineral wealth of California. Popular attention has been but lately directed to it. But the discoveries that have already been made will warrant us in the assertion, that California is one of the richest mineral countries in the world. Gold, silver, quicksilver, copper, iron, lead, sulphur, saltpetre, and other mines of great value, have already been found. We saw, a few days ago, a beautiful specimen of gold, from the mine newly discovered on the American Fork. From all accounts the mine is immensely rich—and already, we learn, the gold from it, collected at random and without any trouble, has become an article of trade at the upper settlements. This precious mettle abounds in this country. We have heard of several other newly discovered mines of gold, but as these reports are not yet authenticated, we shall pass over them. However, it is well known that there is a placero of gold a few miles from the Ciudad de los Angelos, and another on the San Joaquin. Several silver mines, specimens of which we have seen, have lately been discovered. This metal, it is said, is abundant in the vicinity of the Pueblo de San Jose, (now our most wealthy mineral district,) but is said also to exist in many other sections of this country. Silver, as well as copper, we are informed, has been found near San Diego. Don Juan Bandini is the proprietor of a rich copper mine in that region. It is not yet in operation. We also learn that the country in the vicinity of the Clear Lake is very richly provided with this ore. Sulphur abounds, especially in the northern district, near Napa.

We are indebted to Capt. J. L. Folsom, U. S. A., for the following report on *coal* and *asphaltum:*

Little is known in relation to mineral coal in California. As yet there has been no immediate demand for it, and no scientific researches have been made, as there are but few people who possess the necessary acquaintance with the subject to enable them to impart correct information. We have heard of its being discovered at different points upon the navigable waters of this bay, as also at the Santa Cruz mountains, at San Luis Obispo, at San Diego, and at Todos los Santos, or All Saints Bay, one hundred and twenty miles below San Diego. Specimens of coal are exhibited from these and other localities, by persons who feel sanguine of finding it in large quantities and of good quality; but the country has been much disturbed by volcanic agencies, and the question admits of doubt until suitable examinations are made to elicit the truth. At present, too little has been

ascertained to enable us to speak with confidence, although it is well known that the country abounds in combustible bituminous matter, all along the coast.

At Santa Barbara there is a copious fountain of semi-fluid asphaltum, which runs into the sea, and covers the waters, and impregnates the atmosphere for miles. This substance becomes hard, so as to break like rosin, when exposed to the cool air; and it is highly combustible. We are informed that it has been exported to be used in the arts in Peru, and that formerly much of it was consumed as fuel for steamboats in Chili. It is thought it might be made useful for this purpose, in connection with a moderate amount of wood, and with arches adapted to this peculiar kind of fuel. Not far from the lower Pueblo, (Los Angeles,) there are extensive fields where it is constantly boiling up from the earth. This is believed to be the asphaltum petroleum, or "mineral tar" of commerce, but at present no use is made of it except for covering the flat, earthen roofs of California houses, to render them impervious to the rains. All along this coast, a kind of dark-colored, soft, oily stone is found, (commonly known as the "tar stone,") which contains the bituminous matter to such an extent as to make it combustible. In the yard of the Portsmouth Hotel, in this village, this stone is to be obtained, so saturated with combustible oil, as to burn in a candle, and when thus exposed to heat, it emits a strong bituminous odor.

Whatever may be the result of a final examination for coal, however, in California, it is quite certain that the wants of commerce can always be supplied in this quarter of the globe. The Island of Kodiak, west of Sitka, is a continued bed of coal; from it the Russians supply their colonies at the north. On Vancouver's Island, on British soil, there is said to be an inexhaustible bed of excellent coal; and at Nisqually, on the main land, opposite Vancouver's Island, and on American soil, there are coal fields, of unknown extent, running off to the upper tributaries of the Columbia. The agents of the Hudson's Bay Company, and English naval officers, familiar with that portion of Oregon, unite in representing it as rich in quality, and abundant in quantity. Both Vancouver's Island and Nisqually have good harbors, and the coal is found immediately upon the beach. Surface coal was broken up by the Indians, and delivered on the beach, for an English vessel, for about forty cents per ton, and it was represented to be of the finest quality by the officers who used it. Allowing $4 per ton for freight from Nisqually, which is looked upon as a high estimate, and it is believed that Oregon coal can be furnished in this port at a less cost than Pennsylvania coal in New York. At all events, it will be so cheap as to ensure the success of any commercial enterprise based upon its consumption.

Several regions of the country around the Bay of San Francisco, appear to be literally covered with immense beds of quicksilver. Of these mines, those of San Jose are at present the most celebrated.

The following facts and statements respecting the quicksilver mine of New

Almadin, has been kindly furnished to us by an intelligent gentleman, lately from that vicinity:

"The quicksilver mine, called New Almadin, (after the celebrated one owned by the Rothschilds, at Almadin, in Spain,) is situated about twelve or thirteen miles in a southerly direction from the Pueblo de San Jose. The ore is found in one of the ridges of the Sierra Azul, which forms a part of the chain of the Santa Cruz mountains. It is about seventy-five miles from the town of San Francisco, and is eighty or ninety from Monterey. The bed, or vein of the rock in which it is contained, is forty-two feet in thickness, and inclines at an angle of forty-five degrees. The ore differs greatly in quality, according to its situation in the bed—that near the upper surface being very rich, and yielding more than fifty per cent., whilst that near the lower surface is comparatively poor, yielding only about eight per cent. The average amount of pure metal obtained is probably between eighteen and twenty-five per cent. This is said to be a much higher rate than that of Almadin in Spain. The works for extracting the metal are situated near a permanent stream at the foot of the mountain, about a mile from the mine. They are at present very imperfect, and upon a very limited scale, nevertheless, the quantity of pure quicksilver daily extracted, may be safely estimated at between two and three hundred pounds. They have been in active operation only a few months, yet several tons of the metal have already been obtained.

The number of persons employed in the various operations of the mine is as yet small, on account of the imperfect and limited apparatus. It amounts, however, to about twenty. These are engaged in breaking out the ore and transporting it to the works, in cutting, carting and preparing fuel, in tending the furnaces and kettles, and in conveying the mettle to the seaport towns. The employment is in a good degree profitable, and situations in the service gladly accepted. One of the emigrants who entered the country last autumn, in addition to supporting his family, has already cleared more than one hundred dollars per month, by cutting and carting the fuel for the furnaces. It is believed that others also have done as well or better.

Alexander Forbes, Esq., H. B. M.'s Consul at Tepic, and a member of the celebrated and wealthy House of Barron, Forbes & Co., is the principal proprietor of the mine. He contemplates visiting England soon for the purpose, (in part at least,) of procuring better and more extensive apparatus. When this shall have arrived and been put into operation, the number of persons employed will doubtless be greatly increased.

Among the advantages connected with the establishment, it may be stated that the lime necessary to be mixed with the ore in extracting the metal, can be procured in the immediate vicinity. An extensive quarry of limestone has already been opened, a kiln burned, and the material obtained proved by repeated experiments to be of an excellent quality. It may also be stated that a mineral spring has been discovered near at hand. The water has not yet been analyzed, but

gentlemen acquainted with those of Ballston and Saratoga, pronounce its properties to be very similar to those of the celebrated Congress water. It is evidently very strongly impregnated with soda. It does not, however, effervesce like those, and in taste it somewhat resembles that of the common soda water of the founts, after the effervescence has subsided.

Some half a dozen other mines have also been discovered in the neighborhood of new Almadin. These have not yet been wrought sufficiently to justify one in speaking confidently of their prospects. The owners, however, of several of them are very sanguine in their expectations that they will be as extensive and profitable as the one above described. Should this be so, it is easy to predict the immense benefit they will ultimately prove to the business of the country, in all its various relations to the arts, to agriculture, manufactures and commerce.

We extract the following notice of a recent discovery of silver:

PUEBLO DE SAN JOSE, March 28, 1848.

Some few weeks since, Mr. J. F. Reed, of this place, left on a prospecting expedition, and four miles distant, on the side of a large hill, near the edge of the plain, discovered a vein of silver ore, which is, without doubt, the richest ever discovered in the Mexican Republic. The vein is three and a half feet thick, having an uninterrupted run east for three miles, the depth yet unknown. With a few hours labor, there has been uncovered several tons of ore. It is fine ore, and requires but little expense in smelting. Viewing it throughout, location, thickness of the vein, and richness of the mineral, it will prove to be a magnificent concern.

Messrs. Ruckle and Reed have submitted us specimens of their new discovery, together with a most perfect specimen of the famous quicksilver ore from the mines of New Almadin—the richest we have ever seen.

It is also stated that two immense caves are known to exist in the vicinity of Clear Lake, the one containing inexhaustable quantities of saltpetre, and the other abounding in sulphur, both of the purest quality.

COMMERCE.

The author of "Prospects in California," says:

Capt. J. L. Folsom, United States Army, the Collector of the Port of San Francisco, has kindly furnished us with the following statistics touching the commerce of the place for the three months ending December 31st, 1847:

Total value of exports for the quarter, $49,597 53. Of this amount, $30,353 85 were of the produce of California, and was shipped as follows: $320 to the Sandwich Islands, $21,448 35 to Peru, $560 to Mazatlan, Mexico, $7,285 50 to Russian America, (Sitka,) $700 to Tahiti. $19,343 68 were of the produce of foreign countries, having been shipped as follows: $2,060 to the United States,

$12,442 18, (of which $11,340 were coined gold and silver,) to the Sandwich Islands, and $4,831 50 to Mazatlan, Mexico.

Total value of imports for the same period was $53,589 73, and of this amount $6,790 54 came from the United States, $7,701 59 from Oregon, $3,676 44 from Chili, $31,740 73 from the Sandwich Islands, $2,471 32 from Sitka, R. A., $492 57 from Bremen, $550 54 and $160 from Mexico.

These, and other authentic data for which we have no space here, give room for the following remarks: The exports of California produce, for the time stated, were not equal to three-fifths of her imports; in other words, there is a large balance of trade against the country. There has been a heavy drain of specie to balance the account, and still the imports exceed the exports. The principal exports are hides and tallow, the former to the United States, and the latter to Peru. We have abundant means for tanning the former in California, where the best hides are sold for less than $1 50 each, in cash; but they are taken to the United States, and returned to us in manufactured boots, at from $6 50 to $18 per pair. We sell our tallow at seven or eight cents, and buy pressed tallow candles at seventy five cents per pound. We have the finest timber about our hill sides and valleys, and we have imported indifferent Oregon lumber, at fifty dollars per thousand. There are hundreds of milch cows upon every farm, and we import butter from the United States and Oregon at fifty and seventy-five cents per pound, and cheese at corresponding prices. The country swarms with beeves, thousands of which are slaughtered for their skins and tallow, every year, and the ranchos of the interior, and the streets of our villages, are infested with swine, while we are importing beef and pork from the United States, at $15 or $18 per barrel.

Our rivers and the coasts are alive with the finest salmon and other fish, and we import inferior salted articles from Oregon and the United States. We have a soil and climate capable of producing crops of vegetables the year round, in sufficient abundance to supply any market in the world, and we have imported potatoes, onions, turnips, cabbages, &c., from Oregon. The average cash price for wheat for the last fifteen months, has been fifty cents, or less, per bushel, and whole cargoes of it are awaiting a market in the country, while we have been importing flour from the United States, Chili, and Oregon, at an average cost of twelve or fourteen dollars per barrel. There can be no doubt that wheat can be produced in California at a less cost than in the eastern States, and during the time we have been importing foreign flour, there has actually been an abundant supply of grain in the country; but mills are wanting, and those we have are of a very inferior character.

There is another view of this question which is of some importance to California. The official reports show that a great portion of the trade to this coast is indirect, and consequently costly to the consumer. The greatest proportion of the trade of San Francisco, for the period in question, was with the Sandwich Islands and Chili; and the tables show that almost the whole amount of this trade was

for articles not of the produce or manufacture of either of those countries. Hence we are made to pay duties and profits to the merchants and governments of those countries, by these indirect channels of traffic. We are now receiving cargoes from the United States and the East Indies, and it is believed that the time is not distant when the Pacific coast will have all the advantages of a direct and cheap trade.

In this connection it may not be uninteresting to glance at the trade of the Pacific as exhibited in the ports of the Sandwich Islands. In the year 1843, five-eights of the merchantmen, and two-thirds of the trade entering the port of Honolulu, were American. Up to the year 1844, more than one-half of the men-of-war stopping at the Islands were American. In 1843, two-thirds of all the whalers entering the port of Honolulu for refreshments were American, and the records show about the same number for many years past. An intelligent merchant from the Islands has made the following estimate of the business of their ports, as derived from the visits of whalers, merchantmen, and men-of-war, as also an estimate of the exports and imports of Islands at the present time:

Amount of trade from whalers and their crews, per annum, -	$250,000
From men-of-war and their crews, - - - - - - -	175,000
Merchantmen and crews, - - - - - - - - -	30,000
Amount of exports, - - - - - - - - - -	170,000
Amount of imports, - - - - - - - - -	350,000

It is but fair to suppose that the time is not distant when most of the whalers and men-of-war which now seek refreshments at the Islands, will enter their own ports on this coast, where every thing which their situation requires can be got at a less cost, under their own flag. It has been seen that about 32,000 dollars of the trade of San Francisco, for the three months ending December 31st, 1847, was with the Islands, and nearly the whole of that amount was for articles not of the growth or produce of those Islands. It would be a moderate estimate to allow the same amount of trade with all the other California ports, for the same period, and this would be an annual indirect and costly trade with the Islands of about 250,000 dollars. This traffic must speedily assume its natural channels; and if we allow a fair proportion of the trade with whalers, merchantmen, and men-of-war, to be transferred to the coast, it will make an immediate change of about half a million annually. The trade with the whalers, merchantmen, and men-of-war, (say two hundred and fifty thousand dollars,) is of the most profitable kind, as it is almost exclusively for the products of the country—beef, pork, flour, poultry, vegetables, &c. When we consider that this is more than equal to the entire exports of California at the present time, it will appear to be worth the serious consideration of the citizens of this coast, and of the United States Government. The trade is with our own people for articles which our soil is abundantly able to produce in the utmost profusion, and every motive of sound policy and good sense calls loudly for its transfer to our own ports.

SHIPPING.

There were 85 arrivals at the port of San Francisco in the year ending the 31st March, 1848. The vessels are classed as follows:—ships 28, barks 15, brigs 23, schooners 16, and 3 men-of-men, viz.: 1 frigate and 2 sloops. The vessels were from the following ports, namely:—Sandwich Islands 12, Columbia River 6, New York 2, San Pedro 7, United States 3, Monterey 12, Oregon 1, Bodega 3, Santa Cruz 5, Chili 2, northwest coast 4, southeast 1, New Bedford 6, New London 3, Warren, Rhode Island, 2, San Diego 1, Sousoleto 1, Sitka 1, Astoria 1, Canton 1, and Boston 1. Sixteen of the number were whalers. The monthly arrivals were as follows:—April, 1847, 10, May 7, June 7, July 8, August 11, September 19, October 5, November 4, December 5, January 3, February 3, and 3 in March.

MARKETS.

San Francisco, March 29, 1848.

The sales for the week have been much heavier than any for the month past. A slight depression in the money market has not affected the general tenor of business. Much activity has been visible in all branches. The auction sales have been, generally, well attended.

Beef.—Salt, imported, $12 per bbl. None in market.

Fresh Beef.—Ready sale $2 per cwt.

Beef.—On the hoof, from $5 to $8 per head, dull sale.

Bacon.—Scarce, California best, 15c. Imported, 25c. per lb.

Butter.—Market flush, sales brisk at 50c. per lb.

Barley.—Scarce, ready sale at $1 50 per bushel.

Beans.—Market overstocked, sales moderate at $1 37 per bushel.

Corn.—Very scarce, ready sale at $1 50 per bushel.

Cheese.—Scarce, sales dull. California best, 25c. per lb. Oregon best, 37½c.

Fresh Cranberries.—Very scarce, ready sale at $12 per bbl.

Eggs.—Ready sale at 50c. per dozen.

Flour.—The market well stocked, sales rather inactive. Prices—California, $4 per cwt.; Oregon, $4 25; Chili, $4 12½, scarce.

Dried Fruit.—Apples—Very scarce, ready sale at 25c. per lb. Currents—Very scarce, ready sale at 25c. per lb. Peaches—Very scarce, ready sale at 37½c. per lb. Peas very scarce, 12½c. per lb.

Hay.—Scarce, ready sale, good article, $30 per ton.

Horses.—From $15 to $35.

Hides.—Ready sale at $1 50.

Mutton.—On the hoof, $2 per head.

Onions.—Scarce, ready sale at $2 per 25 lbs.

Pork.—Salt, imported, $14 per bbl. None in market.

Potatoes.—Market full, sales small and rather dull. California, 50c. per 25 lbs. Oregon, 75c.

Peas.—Market full, sales moderate at $1 25 per bushel.

Fresh Salmon.—Scarce, ready sale at 12½c. per lb.

Pickled Salmon.—Market full, sales dull, prices $8 to $9 per bbl.

Turnips.—Scarce, ready sale at $3 per bbl.

Tallow.—Ready sale at 5c. per pound.

Wheat.—The general tone of the market flat. Sales small, country overstocked, price 62½c. per bushel.

Boards and Joice.—Market flush. Pine and redwood, best, $50 per 1,000 feet.

"WHOLESALE PRICES CURRENT."

We extract some of the leading articles for the benefit of those who may contemplate a removal to the country: ALE, English, $3 50 to 4 00 per dozen. BREAD, navy, per lb., 6 to 9; pilot 7; crackers, per box $3. CANDLES, per lb., dip tallow 18, mould 20, sperm 50 to 70 cents. COAL, bituminous, per ton, $20, charcoal, per bush. 25 cts. COFFEE, per lb., 15 @ 20. CORDAGE, per lb., hemp 12 @ 15; Manilla 12. DOMESTICS, per yard, brown cotton, 8 @ 10, white 10 @ 14, blue drills 18 @ 21. IRON, American none, English bar per lb. 8c., do. hoop 8, Swedish 10, Russia 10 @ 12, sheet 18. LEAD, pig per lb. 8c. LEATHER, per doz., upper $72, calf $72, sole 25c., harness 18 @ 36. MOLASSES, per gallon 50 to 60c. NAILS, cut, per keg, $10 50, wrought 20c. per lb. OILS, per gal., olive $5, linseed $2, sperm $1, whale 30c. RICE, American, per lb., 8½, Manilla 6¼c. SALT, coarse, per bbl., $3. STEEL, American, per lb., 10c., English 12, German 20. SUGAR, brown, per lb., 6 @ 7c., loaf 18 @ 20. TALLOW, per lb., 5c. WINE, California, per bbl., $12, Port $8 @ 12. WOOL, California, per lb., 12½ cents.

The population of the town of San Francisco exeeeds 800—consisting of male adults 575, female adults 177, children of an age proper to attend school 60. The population has increased more than 100 per cent. in eight months.

ART. V.—THE EARLY HISTORY OF THE TERRITORY WEST OF THE MISSISSIPPI.

WE understand that J. LOUGHBOROUGH, Esq., of Liberty, Missouri, has been engaged for some years in collecting materials for a history of the discovery and early settlement of the territory west of the Mississippi, embracing the migrations, present positions and charac-

teristics of the Indian tribes; the history of the fur trade, and the trade to Santa Fé; and also the geology, botany, soil, climate, and natural history of the country.

From the information that we have received in regard to the industry and labors of the author, we are lead to expect a work both interesting and useful, and one that will justly claim the patronage of the American people.

We are indebted to the kindness of the author for the perusal of a portion of his mannscript, and are permitted to transfer the first chapter of his work to our pages. It will be perceived that he has commenced with the expedition of De Soto, to whom he awards the honor of being the first European that ever beheld the mighty Mississippi. With De Soto's expedition begins the recorded history of this great valley; all anterior to that era is a sealed book to the European races. How deeply impressive the reflection that we are ignorant of all the deeds which were done upon this broad continent from the time that it appeared above the waters, until the landing of Columbus! The seals of this book may never be broken, but we may rescue from oblivion the memory of those tribes whose land we inherit and upon whose dust we tread. We heartily wish our author the most complete success in his researches.

CHAPTER I.

Columbus was the first European who conceived the idea of voyaging westward to the Indies, and to this idea of his, we are indebted for the discovery of the new world. He lived and died in the conviction that he had only reached the Indies, and never for a moment suspected that he had brought to the knowledge of the world a new and magnificent continent. This error occasioned him to give the name of Indians to the natives of the new continent, which they have ever since retained, although the error was detected at a very early period after his death. This cherished dream of ambition seems to have descended to nearly all his successors in discovery and conquest. It animated the courage of Cortez, stimulated the energies of Balboa, and fired the ambition of Pizarro. Prompted by the hopes it inspired, Magellan rounded the Cape, and traversed the Pacific ocean; Grijabra encountered the storms and currents of the Mexican Gulf, and Ponce de Leon and DeSoto braved the terrors of an unknown and insalubrious region. The fate of the last mentioned hero, impressed the Spaniards with a conviction that a passage westward could not be found north of Mexico, and they ceased their efforts in that direction.

But the vital importance of obtaining the command of such a passage, should it exist, was fully appreciated by the English, and the French also; and nearly all of the early expeditions fitted out by these governments, were for this purpose,

or at least for it, in conjunction with other secondary objects. Cartier and Champlain eagerly inquired of the natives of Canada, whither the majestic St. Lawrence would lead them. The pious missionaries who first penetrated to the great interior Lakes, were struck with the grandeur and the beauty of the spectacle, and could not divest themselves of the idea, that as from these vast reservoirs, rivers were known to flow north, south, and east, another, fed by the same exhaustless fountains, would be found to roll its bright waters towards the setting sun; and they listened with profound interest to the accounts of the natives, who told them of a stream far westward, which they called OREGAN, an orthography which Humboldt preserves. In their early maps, a river of this name is laid down as flowing out of Lake Winnipeck, and in their narratives the name *Oregan* first occurs. Nor were the English behind others in their solicitude on this subject. Many of their early voyages had this end in view; the Bay Company was organized for this purpose, and from that day to this, they have spared neither men nor means to secure to themselves the immortal honor.

Ferdinand De Soto, a native of Xeres, in Spain, was a man of extraordinary vigor of mind and character, second only to Cortez and Pizarro in his achievements, and probably equal to either of them in qualification. He was unfortunate only in having led his followers into a region inhabited by tribes more barbarous, and less wealthy and powerful, than the people who submitted to the swords of his great predecessors and rivals in conquest. He had been the nearest friend of Pizarro; had distinguished himself at the storming of Cuzco; and had assisted in the arrest, and shared in the spoils of the unfortunate Atahualpa, the Inca of Peru.

Soon after the final consummation of this splendid conquest, he returned to Spain, where he was received with distinguished honor. The exaggerated stories which had been carried to Europe by the followers of Ponce de Leon and other adventurers, awakened in the ardent mind of De Soto a burning ambition to add another to the list of gorgeous acquisitions with which the Crown of his master, Charles V, had already been enriched. The favor of the Monarch, together with his own high character, enabled him in a very brief period to fit out an expedition *exceeding in number and equipments those which had achieved the conquest of Mexico and Peru.* He sailed at the close of the year 1538, from the port of San Lucar of Barrameda; and after touching at Cuba, where he left his wife in supreme command, his fleet anchored in May, 1539, in the Bay of Spiritu Santo. Here six hundred men, admirably armed and equipped, with three hundred horses, first set foot upon the soil from which fame had asserted that a fountain gushed, the waters of which restored youth and health to all who bathed in it; and within whose interior were enclosed nations among whom the precious metals had been fabled to abound in exhaustless profusion.

From this point the perilous march was commenced. The party had to wade streams, struggle through morasses and canebrakes, and over the tempest-riven

bodies of pine and plane trees, surrounded at all times by bands of natives, rendered vengeful and unsparing by the former cruelties of the Spaniards. The first season brought them to a spot a little east of Flint river, and not far from the Bay of Apalachee. During this march, two Spanish captives escaped from the natives and joined them, but they had heard of no mines or precious stones. The native guides compelled to lead them, could not be deterred from leading them astray, even by the fangs of the terrible bloodhounds which the Spaniards carried with them.

Early in the spring the adventurers renewed their nomadic march, with an Indian guide, who told them wonderful stories of gold and silver still farther in the interior. They passed the Alatamaha, and one of its northern tributaries, and a southern branch of the Ogeechee, and again came upon the Ogeechee itself. After many wanderings, they found themselves at the head waters of the Savannah, from whence they passed to those of the Coosa, through the country of the Cherokees.

The Cherokees were one of the distinct primitive tribes of the continent, speaking one of the eight languages which, according to Mr. Gallatin, were the roots of all the sixty-four dialects found east of the Mississippi river. They were the mountaineers of the eastern side of the continent. Their little villages, nearly fifty in number, consisting of a few cabins each, were embosomed in the recesses of these encircling mountains, whose blue ridges rose successively, like natural amphitheatres, their broad slopes enveloped in magnolias and flowering forest trees, and their bare peaks shooting up at intervals, like minarets, to the clouds. Around their brows the heaving clouds were gathered, their dense folds flashing in the sunlight, or illuminated by erratic lightning, or scattered by the thunderbolt. There fountains of living water gushed from the hill sides, in snow-white cascades, and poured their fertilizing waves over the broad valleys, where luxuriant vines wound their tendrils overhead, and the scarlet strawberry, with the flaming azalea, and other variegated flowers, glittered upon the surface. There the autumnal breeze brought to the earth the fruit of the walnut, the hickory and the chesnut, and the fat soil teemed with rich herbage and grapes, on which the roe buck, the bison, and the elk browzed at early dawn or closing eve. Ah! who shall say how much of primeval bliss was here enjoyed, and for how many ages these people had lived, had loved, and had won the much prized distinction of the eagle's plumage!

In the latter part of July the Spaniards arrived at Coosa, and a short time after they reached a little town called Mavilla, or Mobile, situated about one hundred miles from Pensacola. The Spaniards attempted to occupy this town, but they met with vigorous resistance from the natives. It is doubtful whether a more bloody battle with the Indians ever occurred on the continent. The town was set on fire, and two thousand five hundred of the natives were slain or burned. The Spaniards had eighteen killed, and one hundred and fifty wounded—lost twelve

horses, and had seventy more wounded—and the whole of their baggage was consumed.

De Soto was not discouraged by this mishap. Retreating northward, in about a month he entered *Chicaca*, a town of the Chickasaws, situated probably on the west bank of the Yazoo. Early in the spring having attempted to enslave some of these people, they set fire to their own town in the night, and made a furious attack upon the invaders. Eleven of the christians perished, a large number of their horses were lost, and their baggage, and even most of their arms were destroyed. In this destitute condition the march was resumed, and for seven days they struggled through marshes, and tangled undergrowth, with their bodies torn and lacerated. At the end of this time they came upon Indian settlements, and De Soto reaped the immortal honor of being the first white man whose eyes beheld the rushing current of the Father of Waters. As he stood upon the banks of the great river and followed its course north and south with his eyes, what visions of boundless wealth and undying fame must have saturated his imagination! He could, no doubt, trace in fancy a long succession of nations bordering its meandering current, among whom gold and precious stones were profusely distributed; and he anticipated the day when equipped by the bounty of his Sovereign, he should again traverse as a conqueror and the founder of an empire, the unknown regions which his vigor and perseverance had so fortunately discovered to him. But Providence had reserved this glory to one not less deserving, of another lineage and language.

The point at which De Soto struck the river, is supposed to have been at or near the lowest Chickasaw bluffs, approaching the 35th parallel. Soon after their arrival, more than two hundred canoes were manned by the people of the western bank of the stream. In these they descended the river—the Chief sitting under awnings of woven and painted bark, or willow, gracefully disposed, and the warriors dressed in their gala suits of garnished skins and war caps of eagle's plumes, painted in hideous colors, and armed with bows and spears. They brought gifts of fish and loaves of the fruit of the persimmon.

After the lapse of nearly a month, barges were constructed capable of carrying their horses across the stream, and the foot of the white man marked the western bank of the great river. The Kaskaskia Indians then resided southwest of the Missouri river, and De Soto having heard of the mineral wealth of their country, (which he suspected might be of gold,) determined to visit that region. Wading through morasses and entangled vines, the party reached the vicinity of New Madrid. The natives adored them as children of the sun, and the maim and blind were brought to them to be restored. The country abounded in wild fruits: the pecan, the mulberry, the plum, the grape, the persimmon, and the strawberry,

sprung up spontaneously to sustain the natives; and they occupied themselves in taking a variety of fishes from the streams to give zest to the banquet of fruits.

An exploring party was despatched northward, but falsely reported that they came upon boundless deserts. De Soto resolved to penetrate west and northwest. From an examination of the accounts, we think it sufficiently appears that he passed the heads of the St. Francis and Black rivers, over a region nearly destitute of forest trees, characterized by successive sterile valleys, and precipitous heights and ridges, and occasional fertile bottoms, marked by a basis of limestone, resting on sandstone, covered with red clay, chert, and broken quartz upon the surface. Through the pure air of this rugged district, invigorated by its gushing streams of chrystal water, these daring adventurers pursued their toilsome way to one of the head branches of White river, winding through deep gorges, and around perpendicular cliffs, and along the course of pelucid brooks, over which rich masses of dark green foliage were suspended, and reflected from the glassy surface.

Disappointed and despondent, the adventurers turned their course southward. For some distance they followed the river through a succession of plateaus or steps, down which it leaps in cascades, presenting alternately, long quiet lakes, and narrow rapids and falls, to its confluence with the greater stream; and then, after wandering through various scenery, and crossing many rivers and passing a number of villages, we again find them among the Tunica Indians, near the Hot Springs of the Wachita river. At *Antiamque*, one of their towns, the Spaniards spent the winter.

The natives are all represented as in a condition of civilization above that of nomadic tribes, having fixed abodes, and subsisting upon the products of an agriculture industriously improved, and depending but slightly upon the chances of the chase. They were a powerful and quiet people, among whom feuds were rarely generated, clothed in mats wrought of ivy and bulrushes, and of the bark and lint of trees, with gala mantles of woven feathers; and armed only with the bow and arrow. Each settlement contained a distinct, independent tribe, occupying what the Spaniards denominated provinces. They were treated by De Soto and his companions, with useless and wanton cruelty; sometimes being capriciously mutilated, at others enslaved and beaten, and not unfrequently barbarously committed to the flames.

Early in the spring the adventurers descended the Wachita to its junction, wandering, bewildered, through marshes and bayous, filled with alligators and venomous reptiles; and thence they labored on to Nileo, a well peopled Indian town, and finally reached the province in which the Red river empties into the Mississippi.

The natives represented the territory on the lower Mississippi as waste, and uninhabited, and the alarmed commander despatched an exploring party to ascertain the truth; but they were unable to make any progress through the deep bayous and impracticable morasses. Disease, in the form of vindictive fever, attacked the camp; their horses died and wandered off, and the men fell, daily, victims to the insalubrity of the climate. Despondent. and well nigh desperate, De Soto rapidly sunk under the accumulated calamities which surrounded and beset him. His physical frame was shattered, and his heroic spirit broken. His devoted followers, perceiving that the Angel of Death was about to claim his prey, besought him to name a successor. He did so, and, in some hours after, sunk into his last sleep. His companions carefully wrapped his body in a mantle, and sunk it in the middle of that great river which he was the first to behold, and with which his fame is indissolubly associated.

Moscoso, the new commander, debated with his companions whether they should construct boats and descend the river, or endeavor to make their way into Mexico by land; and it was unanimously resolved that it was less hazardous to attempt the latter alternative. Again the diseased and alarmed adventurers undertake their solitary and perilous march up Red river, through bogs and thickets, and thorns and brambles, and loathsome and venomous reptiles—annoyed by the stings of musquitoes and flies, and the burning beams of the sun—until they found themselves at the village of the Natchitoches. The river was so swollen that it was impassable; and, with their Indian guides, they wandered up and down, amid dense forests and turbid waters, and over naked prairies, covered with cactus, ferox, and other thorny plants, until wearied and panic-stricken, they were lost in the vast plains which expand in sterile and terrible grandeur towards the Rocky Mountains. Totally disheartened, they attempted to retrace their steps; and, after toiling and suffering for many days, they at last hail with gratitude the rolling current of the Mississippi. The point where they reached the river was called Minoya, a few miles above the mouth of Red river; and here many of the enslaved Indians died, as well as some of the Spaniards. Erecting a forge, they struck the fetters from the natives, and wrought them into nails. They sawed planks by hand, and caulked their vessels with weeds, and constructed a few barrels for water. Their hogs and horses were killed and dried, and the Indians robbed for other food. Launching their frail barks, they floated down the river into the Gulf; and, after more than fifty days of apprehension and fatigue, the desolate Pilgrims entered the river Panuco. Out of the vast number of ardent spirits who entered upon the expedition, only three hundred and seven made a final escape from the toils and perils of the route. So terminated the last attempt of the Spaniards to discover a navigable passage into the Pacific, through the continent north of Mexico.*

* In the written account of Major Long's Expedition to the sources of the St. Peters river, the following passage occurs: "To have been the first civilized man who viewed the mighty Mississippi, was, as we conceive, by no means an undesira-

ble distinction; and, however difficult it may be at this distant epocha, to ascertain who that man may have been, the inquiry is not the less interesting or useful in the history of human discoveries. So far as our reading extends, injustice is done to Alvaro Nunez de Cabeza Vaca. He traversed North America from Tampa Bay to New Gallicia, between the years 1528 and 1532, and, consequently, must have seen this river, having crossed it above or at its mouth." As this is a point of great interest to western history, the author, with the assistance of a friend more happily situated for the examination of authorities, has traced out what he believes to be the truth respecting this supposed first discovery.

Alvaro Nunez de Cabeza Vaca, was one of those who accompanied Pamphilo de Narvaez, who, in 1526, obtained from the crown of Spain permission to reinvade Florida. He set sail with three hundred men. Where he landed in Florida cannot be precisely ascertained, but it was probably near the Bay of Apalachee. From thence the reckless adventurers struck into the interior of the country, without chart or guide, or knowledge of the new regions through which they took their hazardous way. Seizing upon the first natives on whom they could lay their hands, they compelled them to act as guides; but these, as they had done in previous invasions of the Spaniards, excited their hopes of conquest and gold, by telling them marvellous stories of wealth and splendor far to the west, with the hope of thus ridding themselves of their cruel and avaricious visitors. Deluded by these wild tales, Narvaez and his companions wandered on, through dense forests, entangled canebrakes, deep morasses, and across many streams, until he found himself in the vicinity of the town of Apalachee. Here their hopes of plunder were disappointed, and again they turned northwards; and, after wandering more than eight hundred miles, over hills, and valleys, and streams, through briars, and thorns, and knotted vines, and suffering the torments arising from excessive heat, a burning sun, myriads of musquitoes, and the on very verge of entire starvation, they finally reached the Bay of Pensacola. Cured of their avarice, or, at least, convinced of the impossibility of gratifying it in such a country, they here constructed a few rude boats, and committed themselves to the mercies of the winds and waves, sustained only by the prospect of hugging the coast from week to week, until they could hail the Spanish settlement on the Panuco. Near the mouth of the Mississippi, their frail barques were struck by one of those sudden squalls so characteristic of the Mexican Gulf, and all of them perished, save one, which was stranded on a neighboring island. Of those whom the tempest had spared, only four escaped the jaws of famine. Reaching the main land on portions of the wreck, these wretched sufferers wandered for years in the interior of western Louisiana, and northern Mexico, subsisting themselves as chance, or skill, or accident, or a merciful Providence supplied them; one day laboring through bayous and matted shrubs and vines, the next picking their way over arid ridges, covered with angular fragments of rock and thorny plants, and another toiling over sandy wastes and precipitous mountains. Who shall say, or even venture to imagine, what must have been their sufferings, when, even at this day, with all our geographical knowledge, and our superior facilities of travel, the wide world contains only one large district, (the great African Desert,) over which it is more difficult or hazardous to pass? Yet these four men, one of whom was Alvaro Nunez de Cabeza Vaca, encountered, from day to day, from week to week, and from year to year, all the necessary dangers and privations of such a journey; and not until the year 1537—ten years after their first landing in Florida—did they again see the face of civilized man. This was at Caliacan, on the western coast, from whence they were sent into the interior of Mexico. The narrative, as given by Alvaro himself, is so defaced with marvels, that it is difficult to eviscerate from it the precise truth. There is, however, no pretence or evidence that he ever saw the Mississippi, nor would it have contributed much to his fame, in the estimation of intelligent men; for, among all the extraordinary adventures of an age fruitful in heroic spirits and daring deeds, we question whether there is one which will bear comparison with this, in the courage necessary to encounter danger, the variety of suffering, and the strangeness of vicissitude.

ART. VI.—THE RISE, PROGRESS AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

SCULPTURE.

In the productions of the chisel, there is a loftiness and grandeur of thought far surpassing those of the pencil. Depending, as it does, on *form* alone, a greater knowledge of what is termed *drawing* is absolutely necessary to its successful operation. Every position in which you may view a statue, presents new outlines wherein the anatomical knowledge of the artist is made manifest. If this knowledge is extensive, the truth of nature irresistably strikes the spectator with pleasure—emotions of delight take possession of his breast—while, at the same time, awe and wonder accompany him in his contemplation. Rude emblems of men, monsters, or imaginary beings, are productive of sensations of terror, or perhaps loathing; and, in the hands of the crafty, are powerful agents by which to work on the fears or credulity of the vulgar and illiterate; but, in its utmost excellence, sculpture invariably commands, in its silent grandeur, the respectful homage of all classes of men. Viewed as allegorical, historical, or personal, it claims our attention by its almost stern reality. The eye is not attracted by its colorless purity; no skillfully arranged masses of light and shade present their witching wiles to the pleasing delusion of the visual orb—no ariel perspective charms you into the regions of unmeasured distance—no transparent tint floats in thin air—nor vapor, nor cloud, nor sombre gloom lend their assistance in making up an enchanting deceit. Its triumph depends on none of the charming trickeries of the pencil. Unadorned by any of the meretricious aids which painting gives, it stands before us in its own severe simplicity—grand, in the loftiest sense of the term—commanding and godlike. Before its shrine the savage stands in awe, and the civilized reverences, through its bright emanations, the divine source of intellect and power.

Never shall I forget the enchanting spell which was thrown over my every sense, on first beholding the Apollo Belvidere. I had been walking in the gallery of the Vatican, and some hours had been spent in feasting my eyes on the glowing canvass and breathing marble, enjoying the rich treasures of inspiration, when suddenly I found myself standing before this mighty effort of the Grecian chisel. I gazed in

silence on a statue the most sublime the eye of man ever rested on. Unearthly majesty pervaded every limb. His apparent action was unswayed by mortal effort; his muscles seemed to be calmly brought into play, and without the exhibition of anger, he was taking revenge on his foes. He was not of this world. But when I turned my eyes to the head of this more than human production, my feet involuntarily retreated, and I found myself in the presence of a God. Language hath no power to convey the most distant idea of the sublimity of that head. To be fully enabled to comprehend this triumph of art, you must go to Rome, and stand in silence at the shrine of Apollo.*

When we come to consider the greatness of the mind that was capable of conceiving and executing so magnificent a statue—a mind capable of impressing on the cold and inanimate marble all the attributes of a divinity, we cease to wonder at the adoration paid by ancient pagans to such mighty works of art. Our wonderment is turned to that vast intellect whose wide spread powers stretch beyond the realms of earth, and seizing upon the attributes of awe and majesty, which belong to Heaven alone, at once give immortality to the creator and created.

In the palmiest days of Greece, sculpture swayed the public taste, and its professors commanded the utmost respect of that enlightened people. Phidias, whose magic chisel transformed the parian marble into matchless forms of living beauty, received the grateful homage of that people whose temples, palaces, and groves he had adorned with the brilliant creations of his immortal genius. Cities, and even whole nations, contended for the possession of his productions, so great was the emulation displayed in their rivalry, that treasure to a vast amount was tendered him for a single statue. This, in our day of utilitareanism, would, perhaps, be looked upon as a sinful waste of public money; forgeting, in their circumscribed notions of economy, the vast good arising from the enobling influence of a refined taste on the public morals. It is of the greatest importance to a people desirous of elevating their position, that they should cultivate the acquaintance

* "The Apollo Belvidere is believed by the learned Visconti to be the Deliverer from Evil—the work Calamis set up in Athens, in memory of a plague which raged in that city.

Sublime in his beauty, and terrible in his anger, it has been considered as the Zœbus Apollo of Homer, destroying the Greeks. It has also been looked upon as a variation from a statue by Phidias."—[Lectures on Sculpture by John Flaxman, Esq., R. A., London: John Murray, 1829.

of this, the noblest of the liberal arts; for, in the encouragement of sculpture, they construct imperishable records of historical events—which serve not only as monuments of all that is and was illustrious in the present or the past, but place defore the rising generation monitors, who speak to their young minds silent but impressive lessons of usefulness and wisdom. The influence of the plastic arts on the social condition of man, is felt and appreciated in proportion to the encouragement they receive from the hands of the community at large. If they are fostered with liberal affection in their infancy, they, in their full maturity, return with tenfold interest the care bestowed on them in their youth.

A people, before whose eyes the godlike creations of the sculptor are ever present, must, of necessity, insensibly imbibe a refinement of taste and feeling immeasurably beyond the price of the creation of such works. Over the minds of all classes they pour a softening influence, irresistably powerful in their moral tendency, which at once calms the rude passions into gentleness, and elevates the mind to a just appreciation of every thing that is ennobling in the various paths of life.

In the language of Flaxman: "The more common purposes of these arts are to illustrate the several branches of science, from the simple elements to the most complicated forms and exertions; but their superior concerns appeal to the intellect and the reason, by the representation of superior natures, divine doctrines and history, the perpetuation of noble acts, and assisting in the elevation of our minds towards that excellence for which they were originally intended."

The great aim of sculpture, as well as painting, is not merely the production of servile copies of *every* earthly lineament, but an *imitation* of the etherial—that spirit of the divinity which lights up, with celestial radiance, the index to the soul—which cannot be caught by the hand of mechanical skill, or stopped in its brilliant coruscation by the wonderful agency of chemical powers. It is part and parcel of the divinity, and alone has the command over its sister essence. Its magic touch arrests in its rapid career, the vivid flashes which illumines the dull, cold clay of mortality, and proclaims man the master work of God. This is the province of art; and *he alone* who can rise above the servile delineations of *minutiæ*, and give to his work the impress of thought, *is* truly an artist. Imitation, not copy, is the test of genius. "Art does not copy nature; it co-operates with her—it

interprets nature—it makes palpable her finest essence—it reveals the spiritual source of the corporeal, by the perfections of its incarnations. It implies a marriage between intellect and soul. It is the fairest offspring of the human mind. Its beginning of existence is a rising upward from the finite towards the infinite—its life is a struggle after perfection—its home is in the inmost chambers of the spirit, where it is apparelled by beauty to shed radiance on the earth. Art is mental procreation, and the mind of a people can no more grow without art, than its body can without generation. It embalms the past—it beautifies the present—it facilitates and widens the future.*

*Preface to the correspondence between Schiller and Goethe, translated by George H. Calvert, Baltimore, 1841.

COMMERCIAL STATISTICS OF NEW ORLEANS.

RECEIPTS AND VALUE OF PRODUCE FROM THE INTERIOR.

A Table showing the receipts of the principal articles from the interior, during the year ending 31*st August*, 1848, *with their estimated average and total value.*

Articles.	Amount.	Average.	Value.
Apples, barrels,	39518	$3 00	$118554
Bacon, ass'd., hhds. and casks,	28909	32 00	925088
Bacon, assorted, boxes,	16210	20 00	324200
Bacon Hams, hhds. and tierces,	18539	45 00	834255
Bacon, in bulk, pounds,	381140	4	15245
Bagging, pieces,	77682	13 00	1009866
Bale Rope, coils,	74325	10 00	743250
Beans, barrels,	20485	2 50	51212
Butter, kegs and firkins,	45213	5 00	226065
Butter, barrels,	1156	20 00	23120
Beeswax, barrels,	698	40 00	27920
Beef, barrels,	35598	8 00	284784
Beef, tierces,	14662	14 00	205268
Beef, dried, pounds,	56100	6	3366
Buffalo Robes, packs,	14	65 00	910
Cotton, bales,	1213805	29 00	35200345
Corn Meal, barrels,	47543	2 00	95086
Corn, in ear, barrels,	509583	60	305749

Articles.	Amount.	Average.	Value.
Corn, shelled, sacks,	1083465	1 10	1192009
Cheese, boxes,	52362	3 00	157086
Candles, boxes,	16750	4 00	67000
Cider, barrels,	344	3 00	1032
Coal, western, barrels,	32000	60	192000
Dried Apples and Peaches, barrels,	1585	2 50	3962
Feathers, bags,	2594	25 00	64800
Flaxseed, tierces,	4393	9 00	39537
Flour, barrels,	706958	5 00	3534790
Furs, hhds., bundles and boxes,	410	——	650000
Hemp, bales,	21584	19 00	410096
Hides,	47662	1 25	59575
Hay, bales,	61934	2 75	170317
Iron, pig, tons,	701	30 00	21030
Lard, hhds.,	459	60 00	27540
Lard, barrels and tierces,	216031	17 00	3672527
Lard, kegs,	303661	3 00	910983
Leather, bundles,	6316	20 00	126320
Lime, western, barrels,	14920	1 00	14920
Lead, pigs,	606966	2 80	1699504
Lead, bar, kegs and boxes,	787	16 00	12292
Molasses, (estimated crop,) gallons,	12000000	16	1920000
Oats, barrels and sacks,	467219	75	350415
Onions, barrels,	7960	2 00	15920
Oil, Linseed, barrels,	2327	20 00	46540
Oil, Castor, barrels,	1199	25 00	29975
Oil, Lard, barrels,	5401	20 00	108020
Peach Brandy, barrels,	4	15 00	60
Potatoes, barrels,	151861	2 00	303782
Pork, barrels,	356480	8 50	3030080
Pork, hhds.,	14201	35 00	497035
Pork, in bulk, pounds,	13564430	3	406932
Porter and Ale, barrels,	3492	7 00	24444
Packing Yarn, reels,	3333	7 00	23331
Skins, deer, packs,	1361	20 00	21220
Skins, bear, packs,	22	15 00	330
Shot, kegs,	5258	18 00	94644
Soap, boxes,	5580	2 50	13950
Staves, thousand,	2000	40 00	80000
Sugar, (estimated crop,) hhds.,	240000	40 00	9600000
Spanish Moss, bales,	3406	4 00	13624
Tallow, barrels,	4357	18 00	78426

Articles.	Amount.	Average.	Value.
Tobacco, leaf, hhds,	47882	55 00	2633510
Tobacco, strips, hhds,	8000	90 00	720000
Tobacco, chewing, kegs and boxes,	6390	12 00	76680
Tobacco, bales,	118	3 00	354
Twine, bundles and boxes,	2132	11 00	23450
Vinegar, barrels,	1199	4 00	4796
Whisky, barrels,	135333	7 00	947331
Window Glass, boxes,	4260	4 00	17040
Wheat, barrels and sacks,	149181	1 80	269659
Other various articles—estimated at			5000000
		Total value,	$79779151
		Total in 1846-47,	90033256
		Total in 1845-46,	77193464
		Total in 1844-45,	57199122

Exports of Cotton and Tobacco, for the year commencing 1*st September*, 1847, *and ending* 31*st May*, 1848.

Whither Exported.	1847-48. Cotton—Bales.	1847-48. Tobacco—Hhds.
Liverpool	619817	8706
London	000	10 08
Glasgow and Greenock	27996	000
Cowes, Falmouth, &c	6270	1153
Cork, Belfast, &c	000	000
Havre	123856	2201
Bordeaux	3178	128
Marseilles	8659	2625
Nantz, Cette and Rouen	5275	000
Amsterdam	1831	000
Rotterdam and Ghent	304	75
Bremen	8716	5252
Antwerp, &c	14170	3371
Hamburg	7991	239
Gottenburg	4887	915
Spain and Gibraltar	32565	7692
Havana, Mexico, &c	25468	617
Genoa, Trieste, &c	45228	3388
China	1490	000
Other foreign ports	13057	975
New York	67578	9573
Boston	143989	1619
Providence, R. I.	1566	000
Philadelphia	16213	1369
Baltimore	12328	200
Portsmouth	5633	000
Other coastwise ports	3132	228
Western States	1500	000
Total	1201897	60364

Export of Flour, Pork, Bacon, Lard, Beef, Lead, Whisky, and Corn, for the year ending 31*st August*, 1848.

Ports.	FLOUR, Barrels.	PORK, Barrels.	BACON, Hhds.	LARD, Kegs.	BEEF, Barrels.	LEAD, Pigs.	WHISKY Barrels.	CORN, Sacks.
New York	80940	103885	10542	299871	6662	358989	9785	262233
Boston	210545	104290	5655	391690	8523	144181	687	268501
Philadelphia	26452	15920	5482	59998	575	79438	4226	6967
Baltimore	50	31439	6028	74947	1528	10431	5364	....
Charleston	6235	2328	4218	9777	311	35	12419	6937
Oth'r c'stwise pts	39635	13241	11865	13203	2725	....	37977	59007
Cuba	14038	2134	918	132407	427	....	....	59486
Other foreign pts	94624	45126	1346	413603	20630	1755	562	560630
Total	472519	318363	46054	1395496	41381	594829	71020	1223861

Exports of Sugar and Molasses, for the year ending Aug. 31, 1848.

Whither Exported.	1847-8. SUGAR. Hhds.	Bbls.	1847-8. MOLASSES. Hhds.	Bbls.
New York	36053	2600	5747	31225
Philadelphia	19808	1512	117	10861
Charleston, S. C.	3355	539	....	6660
Savannah	806	....	118	2334
Providence and Bristol, R. I.	...	....	1043	602
Boston	3674	869	1177	5067
Baltimore	11149	3258	1522	12002
Norfolk, Richmond and Petersburg,	6888	861	....	7121
Alexandria, D. C,	230	....	....	112
Mobile	5310	1604	....	9645
Apalachicola and Pensacola	1738	426	....	3984
Other ports	171	273	2142	1015
Total	89182	11942	11866	90638

*Comparative prices of Sugar, on the Levee, on the first of each month, for five years.**

	1847-8 Cents.	1846-7 Cents.	1845-6 Cents.	1844-5 Cents.	1843-4 Cents.
September,	5 @ 7¾	4½ @ 7¼	6 @ 6¼	5 @ 6¾	5½ @ 6¾
October,	5 @ 7½	6¼ @ 9	6 @ 7½	5 @ 6¾	6 @ 7
November,	3 @ 5½	5½ @ 7	5 @ 7	5 @ 5¾	5 @ 6½
December,	2½ @ 5	4½ @ 7	4 @ 6½	3 @ 5¾	4½ @ 6¼
January,	2 @ 5	5 @ 7⅛	4¼ @ 6½	2¾ @ 5¼	4¾ @ 7½
February,	2½ @ 5¼	5 @ 7⅛	4 @ 6⅛	2¾ @ 5¼	5 @ 7¼
March,	2¼ @ 5	5¼ @ 7½	4 @ 6¼	3 @ 5½	5 @ 7¼
April,	2¼ @ 5	5¾ @ 7½	4 @ 6¼	5 @ 6¾	5½ @ 7¼
May,	1¾ @ 4¾	5 @ 7½	4⅛ @ 6¼	5 @ 6¾	5½ @ 7¼
June,	1½ @ 4½	5 @ 7½	4 @ 6¼	4½ @ 6½	4¾ @ 6⅞
July,	2½ @ 4¾	5 @ 7¾	4 @ 6⅝	4½ @ 6½	4¾ @ 6¾
August,	2¾ @ 4¼	5¼ @ 8	4½ @ 7¼	5½ @ 7	4½ a 6¾

[New Orleans Price Current.

*In our review of the Patent Office Report, see ante page 538, our estimates for the Sugar Crop of 1847 were taken from the "Picayune" of September 1st, 1848. We find, by comparing the tables in the "Picayune" with those of the "New Orleans Price Current," from which the present table is taken, that they are differently made up, though the results are about the same.

In fairness to the Commissioner of Patents, we wish to say that the prices of sugar for the last five years, have ranged higher than our remarks at page 538 would seem to indicate. We find, however, that the average at New Orleans has not reached six cents per pound since 1843-4. We are still of opinion that our estimate for the sugar crop of 1847, is not too low.—[Editors.

Having arrived at the conclusion of the tenth number of the Western Journal, we trust that we shall be excused for adverting to our own affairs. To us, few things could be more embarrassing than canvassing for our own work; and hence we have waited until those confiding friends who generously came to our support at the commencement, should have time to judge of its merits. We are not so vain as to imagine that we have given satisfaction to all our readers, nor so egotistical as to suppose that we have done complete justice to the work. Yet we may be allowed to say that many of our patrons have kindly expressed their approbation of our labors, and are pleased to encourage us in the hope of being useful to the country. From such individuals we venture to claim something more than the money price of the work: we claim their influence in extending its circulation. If they are convinced of its utility, we hold it to be their duty to aid in extending its usefulness, and we respectfully invite them to discharge this duty by explaining the nature of the work, and soliciting subscriptions.

We have still on hand a considerable number of the current volume—these we will dispose of for $2,50, and any individual sending us five dollars before the commencement of the next volume, will be entitled to the first and second volumes. After the close of the first volume, the work will be enlarged to 72 pages, printed with new type and on good book paper. With these improvements we cannot afford the second volume alone for less than three dollars.

Our distant subscribers who are in arrear for their subscription, will confer an important favor upon us if they will remit by mail, at their earliest convenience.

TO AGENTS.

We beg to call the attention of our agents to the foregoing address to our patrons, and desire that they should be guided by it in the discharge of their duty. We respectfully solicit their active exertions.

TO EDITORS.

Our friends in the interior with whom we exchange would greatly oblige us by publishing our terms during the remainder of the year. We cannot afford to pay for this service, and wish it to be understood that we do not claim it except from such as may believe that it will be the means of promoting the public good.

Large Hemp Stalk.—We have received from Capt. J. T. Cleveland a Hemp Stalk produced on his farm in Howard county, Missouri, which measures 8¼ inches in circumference. He informs us that it measured over nine inches when taken from the ground.

We avail ourselves of this opportunity of noticing two typographical errors which occur in Capt C.'s communication on the growth of Hemp, in the August number. At page 441, line 30, for *leave* read *have*, and at page 444, line 32, for *land* read *hand*.

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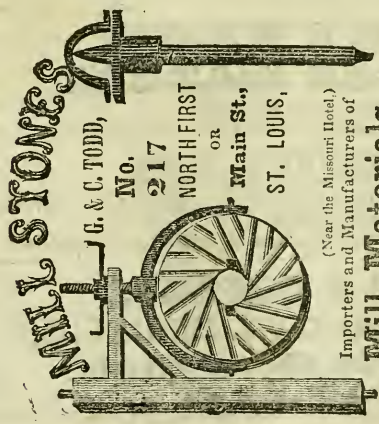

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Original essays and communications upon any of the subjects embraced in our design, are respectfully solicited by the editors.

Communications are invited upon the following subjects.

1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth.

VOLUME I. NOVEMBER, 1848. NO. XI.

THE WESTERN JOURNAL,

OF

AGRICULTURE, MANUFACTURES, MECHANIC ARTS,
INTERNAL IMPROVEMENT, COMMERCE,

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N. B.—To whom reference will be given by calling at the School Room.

March 1, 1848.

THE

WESTERN JOURNAL,

M. TARVER and T. F. RISK, Editors and Proprietors.

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THE

WESTERN JOURNAL.

Volume I.] NOVEMBER, 1848. [Number XI.

ART. I.—WHERE SHALL WE FIND A MARKET FOR OUR SURPLUS GRAIN?

WHERE shall we find a market for our surplus grain? The individual who can answer this inquiry, and direct us where consumers and purchasers can be found, able to pay remunerating prices to the grower, will be quite as great a benefactor to the west—as he would be to mankind in general—could he teach them how to produce two blades of grass instead of one.

According to the estimates made by the Commissioner of Patents, it appears that, after feeding both man and beast, and making liberal deductions for all other purposes, there will still remain of the crop of 1847, a surplus of 224,-384,502 bushels of grain, for exportation,

This aggregate is made up of the following articles: wheat, 40,581,750 bushels; Indian corn, 173,654,904 do.; rye, 5,296,913 do.; and buckwheat, 4,950,935 do.—amounting, in all, according to the prices at which these grains are valued by the Commissioner, to $124,078,522 55—a sum larger than the average annual exports of the entire country, including cotton, tobacco, rice, and manufactures of every description.

The Commissioner of Patents, in his report for 1847, says: "We have not been able to obtain the returns from other countries, (meaning other countries besides Great Britain,) for a series of years. But, from the best authorities which we have been able to consult, we have compiled the following table, exhibiting the quantity of wheat (exclusive of other grains,) required by the principal corn purchasing countries of the world:

Countries.	Quantity required—bushels.
Great Britain,	20,000,000
France,	5,000,000
West Indies, generally,	2,500,000
British American Colonies,	2,500,000
South America, generally,	1,900,000
Holland,	1,000,000
Total	32,900,000."

Now it will be seen that, if we had no rival in these markets, our surplus of the growth of 1847 would supply all the wheat purchasing countries, and still leave 7,681,750 bushels on hand. But, according to the estimates of the Commissioner of Patents, Russia and other countries also produce a surplus of wheat, amounting to about 20,000,000 bushels; and, although we consider this a very low estimate, yet it is sufficient to prove beyond all controversy, that we can never find a remunerating market abroad for our surplus, except in years of scarcity. Yet, the Commissioner of Patents has undertaken to show the American wheat growers that they can compete successfully with those of any other country; and, after estimating the cost of growing, transporting to market, &c., he says: "We are, therefore, confirmed in the conclusion, that the American grain growers can deliver grain, or flour, at as low a price in England, as the grain growers of any other country, not excepting Russia, on the Black Sea; and that they have it in their power to command the great grain market of Great Britain, and of nearly all the corn importing countries of the world." Had the American people never made the experiment of growing grain for foreign markets, and being ignorant of the social condition of other countries, one should undertake to show, by figures, that they could drive the Russian and other European grain growers out of the English market, such a conclusion might not be regarded as altogether unreasonable; but, when all the facts connected with the subject are taken into consideration, we can scarcely conceive how an intelligent mind could arrive at the opinion so confidently expressed by the Commissioner of Patents.

We have met with no historical account, showing when the exportation of wheat and other grains commenced from this country, but the public documents show the amount exported annually since the year 1789. And, according to tables published in the Merchants' Magazine, for April, 1845, it appears that the average amount of wheat exported from the United States, to all countries, from the year 1790 to 1843, inclusive, was 4,838,381 bushels—estimating that shipped in the form of flour, at five bushels of wheat to the barrel.

Thus it will appear that the annual exports from this country have averaged about one-seventh part of the quantity required by foreign purchasers. We have not before us the amount of wheat exported in the years 1844 and 1845, and cannot, therefore, determine the precise period when the scarcity in Europe began to stimulate our exports; but, from a statement in the Merchants' Magazine for December, 1847, it appears that we exported during the fiscal year of 1845-6—wheat, 1,613,795 bushels, and 2,899,476 barrels of flour; which, being reduced to wheat, at the rate of five bushels to the barrel, makes the entire amount equal to 16,111,175 bushels.

According to the Report of the Treasurer of the United States, we exported during the year ending the 30th day of June, 1847—wheat, 4,399,951 bushels, and 4,382,496 barrels of flour; which, being reduced to grain, at the rate of five bushels to the barrel, is equal to 21,912,480 bushels—making the total export of

wheat for that year, 26,312,431 bushels. We are not in possession of facts that enable us to estimate, with any degree of accuracy, the quantity of wheat exported in the fiscal year ending on the 30th June, 1848; but, from a statement contained in the Delaware Republican of the 24th of August, it appears that the quantity of flour exported to Great Britain and Ireland, from the 1st of September, 1847, to the 15th of August, 1848, was only 178,782 barrels. If this statement be correct—and we have no reason to doubt of its truth—we conclude that the exports for the last twelve months have not exceeded the annual average of the last fifty years.

To show the progress that we have made towards securing the wheat market of the world, we have made an average of the exports from the United States to all countries, during the ten years ending with 1799; and also the ten years ending with 1839, and find the annual average for the first period to be 4,088,137 bushels, and that of the second period to be 4,410,556 bushels—being an increase of about 8 per cent. in forty years. But, if we take into consideration the increase of population in the wheat purchasing countries, it will appear evident that we supply them with a less proportion of their imports for consumption now, than we did during the ten years immediately preceding the present century. With these facts before us, and being totally ignorant of any change in our favor, which will enable us now, more than formerly, to compete successfully with Russia, and other wheat growing countries of Europe, we never could have comprehended the process of reasoning by which the Commissioner of Patents arrived at his conclusion, but for his estimates of the cost of producing wheat in this and other countries.

If the wheat growers of the United States, enlightened by the calculations of the Commissioner, should realize the result which he so confidently predicts, he will be entitled to the profound gratitude of the nation; and this discovery of his may be considered as the most important of the age. For it would seem that, owing to their ignorance of the fact that they could deliver wheat in Great Britain cheaper than could the producers of any other country, the wheat growers of the United States have annually lost the sale of many millions of bushels of grain; and the dealers, also, have lost the most brilliant chances of speculation which were ever offered to the lovers of enterprise.

But, unfortunately for American wheat growers, the Commissioner's figures do not embrace the entire subject; for, in working out this problem, it is necessary to consult other branches of science besides arithmetic. A knowledge of geography, history, and political economy, is also necessary; and we must especially take into account the nature of the political and social institutions of different countries, before we can determine which can afford to sell the products of their labor at the lowest price, in a foreign market.

In a community where a small number of individuals receive the profits accruing from the labor of the great mass of operatives, they can always afford to

undersell the inhabitants of a country where every one enjoys the privilege of disposing of his own time, and of appropriating to his own use the products of his labor.

The existence of slavery in civilized countries, depends mainly upon the profits which accrue from agricultural labor; and, if there was no market for the products of slave labor, the relation of master and slave would cease to exist. For few individuals would subject themselves to the cares and responsibilities incident to this relation, were it totally unproductive of profit.

To render slave labor profitable, it must be employed in the production of commodities for exportation; for slave holders in the same country are not consumers of the products of each other. And hence the necessity of directing the labor of slaves to some one, or to a few, staples, that will bear transportation to distant markets; and, as long as these staples will pay any profit, no matter how small it may be, the master will continue to produce them. For, in these profits consists the value of his slaves; and, could he find no market for his staples, he would abandon his slaves as useless.

We have an illustration of this principle in the history of cotton growing in the United States. We remember when intelligent cotton growers believed that they could not afford to grow cotton at ten cents per pound. It has since sold for less than five cents, and still they continue to produce it; and, should it fall to two cents, it would not materially affect the quantity now produced, though it might prevent its increase. We base this opinion upon our knowledge of the fact that, in much the larger part of the cotton growing district, no other staple, at present known, can be produced, that would prove more profitable; and such is the predicament, especially of Russia, in regard to wheat growing. It may startle some of our philanthropists, when they are told that there are more slaves in Russia, than in, perhaps, all the world besides. To show the number and condition of the slaves in Russia, we extract the following account from McCulloch's Geographical Dictionary, a work of acknowledged authority. Having noticed the nobles, clergy, and merchants, he says: "Unhappily, however, the far largest portion of the people of Russia are *slaves;* belonging either to the crown, or to individuals; about twenty-one millions being the property of the former, and twenty-three millions of the latter. Count Cheremetief is proprietor of above 110,000 slaves; and the numbers of those belonging to some of the other great landholders, are but little inferior. The nobles are obliged to pay a tax to government, (at the rate, generally, of about four roubles per male,) and to furnish recruits for the army, according to the slave population of their estates. The time and labor of the slaves belonging to private individuals, are absolutely at the disposal of their masters, who may seize whatever property they may happen to acquire. The most common practice is, for the latter to impose on their peasants an abrock, or capitation tax, which may amount, of an average, for those resident in the country, to from thirty-five to forty-five roubles per *male*, young and old;

but those who have received licences to reside in towns, or who have learned any profession, or have been successful, are charged far greater sums; sometimes even as much as a thousand roubles a year or upwards! Others, instead of an abrock, perform task work; others, again, deliver a certain portion of their produce; and from some, all these are demanded. Runaway slaves are punished by imprisonment and hard labor.

"Besides having power to dispose of his time and labor, the master may inflict *corporeal punishment on his slaves;* but he is forbidden by law(which, however, is often evaded,) from treating him with any great cruelty; and he is guilty of a capital offence, if death arise from his chastisement within *twenty-four hours.* When one class may exercise such power over another, very great abuses cannot fail to exist. The insecurity, too, under which the peasants are placed, is necessarily fatal to their industry. Oppression and ill-treatment are now, however, a good deal less common than formerly; and it is certainly true that the condition of the boors is, by no means, so bad as might, *a priori*, be concluded; and that, as respects their command over the necessaries of life, they are in a much better situation than the peasantry of Ireland.

"Those on the estates of humane and enlightened landlords, are in decidedly comfortable circumstances; while they mostly all have sufficient supplies of the articles they consider necessary to existence. Some licensed slaves have accumulated very large fortunes. One of this class of persons is mentioned as having 4,000 laborers in his employment; and another planned and built the finest church in Petersburg.

"The peasants are of a sound constitution, stout and firmly built, and generally of a middle stature. They live in wooden cottages, formed of whole trees piled upon each other, and built together in villages, the gables to the road. Sometimes they consist of two stories, but more frequently only of one. They are heated by stoves, and though dirty, are not uncomfortable, nor ill-suited to the climate. Their furniture consists, generally, of wooden articles, with a pan or two. Beds are little used; the family generally sleeping on the ground, on benches, or on the stoves.

"The dress of the peasant consists of a long coarse drugget coat, fastened by a belt around the waist; but, in winter they wear a sheep-skin, with the wooly side inwards. Their trousers are of coarse linen; instead of stockings, woolen or flannel cloth is wrapped round the legs, and boots or shoes of matted linden bark are frequently substituted for those of leather. The neck, even in winter, is bare, and the head is covered by a peaked round hat or cap."

In this account of the relation which exists between the Russian peasant and the land holder, we find enumerated all the badges that denote slavery of the most absolute character, with the slight exception that the owner may not *immediately* take the life of his slave, with impunity; but, if he survives the punishment inflicted by the master for the space of twenty-four hours, it would seem

that the latter is not accountable for his death. The author says: "The time and labor of slaves belonging to private individuals, are absolutely at the disposal of their masters, who may seize whatever property they may happen to acquire. And, again, "the master may inflict corporeal punishment on the slave; but he is forbidden, by law, (which, however, is often evaded,) from treating him with any great degree of cruelty." Every thing here mentioned to show the comfortable condition of the Russian peasant, may be affirmed with truth in regard to the condition of slaves in the United States, except that licenses are not, perhaps, as common in this country as in that; but this can be of little benefit to the slave, when the master may, at his pleasure, seize all the property which he acquires.

And, furthermore, we are informed that in Russia land is of no intrinsic value. We quote from a document prepared by a Russian nobleman, published in the *London Economist*, and adopted by the Commissioner of Patents, as a part of his report. The author says: "Agriculture, in Russia, is still in its primitive state, though the number of products, and their quantity, is great, no province furnishes more than one-half of its natural capacity. For this reason does the soil, in *by far the greater portion* of Russia, possess no real *intrinsic value;* the latter depending *entirely on the labor of man*—so that, instead of asking the number of acres, the number of hands that belong to it, form the measure of its value. The best cultivated provinces of Russia are on the Baltic, in the provinces adjacent to Moscow, and in the Russian provinces of Poland; and even in these provinces are to be found immense districts, of which not the fifteenth part is, as yet, taken into cultivation." Here is a practical combination of "free soil" and slavery. And we ask if there is any individual who can, with these facts before him, arrive at the conclusion that the freemen of the United States, cultivating land valued at from ten to fifty dollars per acre, can produce wheat in successful competition against 44,000,000 Russian slaves, who subsist principally on rye bread and porridge, clothe in sheep skins, sleep on the ground, and labor on land, which costs their masters nothing?

Such a conclusion would be absurd in the extreme; and, moreover, it may be safely affirmed, that, but for the duty imposed on the importation of wheat into this country, Russia would successfully compete with American wheat growers, in our own markets.

The production of a staple for exportation is opposed to the genius and economy of free labor. It is calculated to turn both labor and capital into one channel, and tends to make the staple growing districts dependent on other countries for almost every commodity of convenience and comfort. But there is a portion of the American people, so ardent in search of foreign markets, that they seem to overlook both facts and reason, and appear incapable of comprehending the most obvious and simple principles of political economy. Their delusion, in this respect, is not less absurd than was that of the Alchimists in searching for the Philosopher's Stone; and, could they accomplish all they so much desire, success

would tend to destroy, rather than promote, the prosperity of the country. We should have regarded the Commissioner's estimates of the surplus of wheat as extravagantly large, but for the quantity drawn into market by the high prices of 1847. This incident has established the fact, that an immense amount of the products of the labor of this country perishes, or is wasted, annually, for lack of a demand. And if, without any notice or preparation for a foreign demand, we could turn out over 26,000,000 bushels of wheat, in the short period of a few months, what could we not do if the demand were to continue for years in succession?

We commend the diligence of the Commissioner of Patents, in seeking a market for our surplus grain; but, with all his industry, he has shown that all the wheat purchasing countries require only about 33,000,000 bushels. And, if we should suppose that they needed an equal quantity of all other kinds of grain, and that we should, to the exclusion of the rest of the world, supply the entire demand, yet there would remain a surplus of 158,384,502 bushels—a quantity equal to the labor of 316,769 individuals, supposing them to produce 500 bushels each—and sufficient to sustain a population of 15,800,000, allowing 10 bushels per annum to each individual.

These estimates appear so enormous that we can scarcely believe them true; but, when we consider the quantity of grain which we exported in 1847, and that there was still an immense amount left in the country, we conclude that the calculation in regard to wheat, cannot be deemed very extravagant. But, if we should abate one-half the quantity, it would still appear that the labor of 158,384 individuals, employed in grain growing, was lost for want of a market, even after supplying the entire demand of all the grain purchasing countries.

Having shown conclusively, as we think, that it is impossible to find a foreign market for but a very small portion of our surplus grain, let us now enquire whether it is practicable to create a demand at home, equal to the supply. We have so frequently urged the importance of building up a home market for our breadstuffs, by encouraging manufactures, that we begin to fear that our readers may suspect that we are insane on this subject. And, having hitherto relied on our own reasoning, we now beg to fortify the arguments which we have so frequently urged, by the opinions of others.

In a letter from Gen. Jackson to Dr. L. H. Coleman, of North Carolina, dated in 1824, he asks: "Where has the American farmer a market for his surplus produce? Except for cotton, he has neither a foreign or a home market. Does not this clearly prove, when there is no market at home or abroad, that there is too much labor employed in agriculture, and that the channels for labor should be multiplied? Common sense at once points out the remedy: Draw fram agriculture this superabundant labor; employ it in mechanism and manufactures—thereby creating a home market for your breadstuffs—distributing labor to the most profitable account—and benefits to the country will result. Take from

agriculture in the United States 600,000 men, women, and children, and you will, at once, give a market for more breadstuffs, than all Europe now furnishes us with. In short, sir, we have been too long subject to the policy of British merchants. It is time we should become a little more *Americanised;* and instead of feeding the paupers and laborers of England, feed our own; or else, in a short time, by continuing our present policy, we shall be paupers ourselves." Here is the answer to the inquiry with which we set out in the commencement of this article; and, in our opinion, it is the only true answer that can be given to it.

Mr. Jefferson says, in a letter to Benjamin Austin, in 1816: "We must now place our manufacturers by the side of the agriculturalist." * * * And, again, "The grand inquiry now is, shall we make our own comforts, or go without them, at the will of a foreign nation. He, therefore, who is now against domestic manufactures, must be for reducing us either to a dependence upon that nation, *or be clothed in skins, and live like beasts, in dens and caverns. I am proud to say, that I am not one of these. Experience has taught me, that manufactures are now as necessary to our independence as to our comfort.*"

It is true that we are less dependent upon foreign countries now, than in 1816; but we are yet very far from being independent of their labor and skill, while at the same time, we have a surplus annually perishing on our hands, nearly equal to the entire amount of our imports from foreign countries. This is the main point to which we desire to call the attention of our readers, and we ask whether we shall continue to waste our labor and wear out our soil in producing an overplus for which there is no demand, either at home or abroad, when it is completely in our power, by "placing our manufacturers by the side of the agriculturist," to secure to the latter a market and remunerating prices for all our products? This policy would secure to us not only that independence so much desired by Mr. Jefferson, but would at once enable us to control the commerce of the world. But the moral effects would be more important still. Inadequate prices for labor, and the uncertainty of finding a market for its products, are abundant sources of social evil. To these causes may be attributed, in a great measure, the spirit of traffic and speculation which so strongly characterize the American people; and hence, also, one cause of idleness and all the vices which proceed from it. We invite the reader to call to mind the many individuals of his acquaintance who have failed in trade, and who, with their families, have been driven to want the common comforts of subsistence; suffering too, although it may be unjustly, under the imputation of dishonesty—bankrupt alike in property and reputation—shut out from the sympathies of those who were sometime their friends, and, to say nothing of their own unhappy condition, now lost to society. Trace their history back to the commencement of their career in life, and it will be found in a majority of cases, that a superabundance of labor was the cause of their becoming traders and speculators.

Instinct, perhaps, more than reason, lead them to abandon a pursuit in which

so much labor was lost; but alas! the evil is not limited to the agriculturalist—it is even more fatal to the merchant; and how could it be otherwise when he deals in commodities that are so redundant that the demand can never equal the supply. Local and temporary causes may sometimes enable him to make a profit, and if, like a dextrous gambler, he should stop at the right time, he may retire without loss; but where the chances are so much against him, he must lose in the end. For in this country, it may be safely affirmed, that the dealer in produce, who all the time trades to the extent of his means, must, in the end, fail with as much certainty as if he bet at a game where the chances were fifty per cent. against him. And owing to the same cause, the dealer in general merchandise is in a condition but little better than the dealer in produce. The fabrication of foreign commodities, which constitute a very large portion of the merchandise which we consume, depends in so small a degree upon our agricultural products, and the source of supply having little or no relation to our means of purchasing, the dealer can not, in the nature of things, always regulate his purchases according to the demand; and hence, the chances are necessarily against him, and he too, as well as the dealer in produce, must fail in the end. This proposition is fully established, we think, by the mercantile history of this country. We have not the statistics before us, but we have often seen it stated, that even in Boston, about ninety-five out of every hundred merchants fail in business; and as long as we purchase so large a portion of our manufactured commodities from foreign countries, perhaps no individual could deal in them to the full extent of his means, without being ruined in the course of a lifetime of reasonable length.

If the labor of the country was so divided that the manufacturing and other classes should consume all or nearly all the surplus of the agricultural products, this would establish a relation between the sources of supply and demand, that would relieve every branch of industry and trade from that great degree of uncertainty which now attends them. This would place every branch of business upon an equal footing, and tend to reconcile each individual to their respective employments. It would remove the temptation to speculation, give constant employment and adequate remuneration to all, while it would also encourage the idle to habits of industry. And more than all this, it would put an end to the daily occurrence of bankruptcies and disappointments in business, which induces so much individual suffering, and deprives society of the usefulness of so many of its members. All this could be effected, and still leave a surplus of grain quite equal to the foreign demand, while our exports of manufactured commodities would be enlarged almost to an indefinite extent.

Before closing this article, we feel constrained to notice a paragraph in the Merchants' Magazine of September, 1848, at page 306, which is, in our estimation, calculated to mislead the public mind in regard to the extent of the foreign demand for breadstuffs, and to divert the American people from considering the

importance of building up a market at home. After showing the comparative values of wheat, oats and potatoes, as articles of food, he says: "From this it appears that one acre planted in potatoes, will support as many persons as four planted with oats, or three with wheat. The increased population of Ireland, which rose from 6,036,000 in 1812, to 8,179,359 in 1841, was mostly sustained by potatoes, taking patches from grain lands and planting with potatoes. In the English manufacturing districts, the same process enhanced the quantity of cheap food to the operatives, until it was estimated in 1846, that 3,400,000 acres were planted with potatoes, yielding 30,600,000 tons of food. Of this, 60 per cent. perished by rot, and the cultivation of potatoes has been abandoned to an extent which requires an addition of at least 150,000,000 bushels of grain to her annual harvest." Now, it is quite evident that these estimates are made upon false data. From a return published by the House of Lords, it appears that the quantity of grain and flour taken out of bond for the ten years preceding 1846, averaged 19,422,630 bushels annually, estimating flour at 2¾ bushels per 100 cwt. In 1846 the quantity taken out of bond amounted to 44,168,150; in 1847, the year of the greatest scarcity, the quantity amounted to 84,970,772 bushels, being an increase of 65,548,142 above the average of the ten years preceding the year 1836; and the amount taken out of bond in the first seven months of the present year, was 22,980,948, and if the consumption of the balance of the year should continue in proportion to the first seven months, the quantity of grain taken by Great Britain for consumption this year, will amount to 39,395,901 bushels being only 19,973,271 bushels more than the average of the ten years immediately preceding 1846. Thus it will be seen that the entire amount of grain taken out of bond in the years 1846, '47 and '48, is only 110,266,933 bushels more, than the average of the ten preceding years. Nor would it be possible for Great Britain to sustain her population for even two years, if she was under the necessity of importing 170,000,000 bushels of grain annually. Indeed, it would employ a very large portion of the shipping of the world to transport it, and nothing but the charity of other nations could save the country from a more dire famine than has ever been recorded in the history of man.

ART. II.—WHEAT GROWERS' ASSOCIATION OF ST. CHARLES COUNTY.

CHEROKEE ROSE—OSAGE ORANGE—IMPORTANCE OF AGRICULTURAL ASSOCIATIONS—ST. CHARLES ROAD, ETC.

There are few things more important in the practical economy of the Western States than the discovery of some plant suitable for live fences. Having long entertained this opinion, we read with great interest a communication from T. Affleck, Esq., of Mississippi, on the

Cherokee Rose, which appeared in the "Commercial Review," of February, 1848; and, though doubtful whether it would succeed in Missouri, we transferred the article to the pages of our Journal, not knowing at the time, whether it had ever been planted in this part of the country. The experiments of Mr. Alderson, which are mentioned in the following communication, leaves us without hope that this beautiful plant can be made useful in our climate; and hence it affords us the more pleasure to learn that the Osage Orange is not affected by the frost of our winters. This is a stronger plant than any that has been hitherto cultivated in this country or Europe for the purposes of hedging; and if its branches can be trained sufficiently near the ground to turn hogs and other small animals, it must, we think, prove sufficient in strength to turn every other kind of stock. It possesses great beauty in both the form and color of its foliage, and when in fruit, is altogether a pleasing object to the eye. We have been informed that the foliage is most excellent food for silk worms, and that it has been ascertained by chemical tests that it contains a larger proportion of the properties requisite for the production of silk than any other foliage that has been used for that purpose. We should be pleased if such of our readers as have planted the Osage Orange, would communicate the manner in which they treat the seed before planting. Whether they plant them dry, or soak them in either cold or warm water? And also, when is the best time to plant? Should the seed be planted in nurseries, or should they be planted where it is intended that the tree should form the hedge? How far should they stand apart in the hedge, and when and at what height should they be topped or headed down? Answers to these inquiries, with such observations in regard to the economy of growing the tree as have been noted in this climate, will tend to encourage its introduction, and extend its usefulness.

We beg to acknowledge our obligations to Mr. Alderson for the paper containing the report of the "Wheat Growers' Association of St. Charles County." The first part of the report, having reference to matters merely local, we publish that part only, which relates to the economy of constructing a McAdamized road from St. Charles to St. Louis, and upon this subject the views of the committee appear so clear, and their arguments so just and well arranged, that any remarks from us would be superfluous. Yet, seeing that the subject is so justly appreciated by the intelligent farmers of St. Charles county, one can

scarcely imagine why some efficient steps have not been taken to carry the work into effect. It cannot be owing to a want of means, for by the showing of the committee, the surplus products of St. Charles county amount to about double the cost of making the road, and we think there can be little doubt but that the road stock would yield a better profit than money invested in farming, where the facilities of transporting the produce to market are so limited. But the profit on road stock is a matter of small consideration when compared to the advantages to be derived from the improvement, and the additional value which it would impart to real estate, as well as to its products. The dairies, the orchards and gardens of St. Charles county, can all find a market in St. Louis, and with proper facilities, they could compete successfully with those in the more immediate neighborhood of the city, where lands are worth from fifty to one hundred dollars per acre.

We sincerely trust that this enterprise will not be allowed any longer to slumber, and we feel assured that if a few influential and energetic individuals will take hold of it in earnest, that the means can be raised in time to begin the work with the opening of next spring.

The Association of the Wheat Growers of St. Charles County, is an institution highly worthy of commendation. Every other profession and calling have organized associations for the purpose of fraternizing the individuals who belong to their respective pursuits; and also, for the further object of watching over and giving the best direction to the common interest of each, while the farmers, especially of the west, seem to suppose that their interest will take care of itself. But we say to them, in unqualified terms, that this is a fatal delusion; for those engaged in all other pursuits, derive the means of subsistence, either directly or indirectly, from agricultural labor, and their instincts lead them to appropriate to themselves the largest amount of agricultural products at the smallest cost. None, of all these, except the politician, even profess to consult the interest of the farmer, nor would any reasoning mind expect them to do so. While the politician, even allowing him to be honest, is generally, of all other men, the least capable of giving a wise direction to the policy of any pursuit in the country. His instincts lead him in pursuit of office; this is his vocation, and finding party discipline a more potent agent than his own reason, he dares look on but one side of a subject, lest he should be

convinced of his errors, and his conscience, enlightened by reason, should beguile him into the path of truth. It is not a simple question of policy, but it is the *duty* of the farmers, as a class, to organize associations and appoint committees to examine thoroughly, every thing connected with their own interest, paying no regard to the political opinions of any party; and when they shall have ascertained their true interest, according to the best lights before them, then let them act in concert, and whether the consummation of their object requires the agency of capital or legislation, it will be in their power to control either, or both, if necessary. And there need be no conscientious scruples entertained lest the interest of other pursuits should suffer by their action; for it may be safely affirmed as an axiom, that the policy which promotes the true interest of the agriculturalist, embraces and promotes also, the best interest of those engaged in every other pursuit, whether industrial or commercial.

To the Editors of the Western Journal:

I have, so far, read the Western Journal with much interest, and especially those articles under the head of "Artificial Agents of Exchange." The seven main propositions are proved beyond all cavil, to the candid and unbiassed mind; and it is to be hoped that the people of the west will beeome awakened to a sense of their true interests and enter largely into manufacturing generally. The nearer the market, or the more convenient the producer and consumer to the manufacturer, the better for both parties.

As you are devoting some interest to hedges, I would remark, that I know something of the Cherokee Rose, as such, and that in the south it forms a most admirable obstacle, both to the ingress and egress of either stock or vermin.

In February, 1845, I brought with me from Natchez, a few roots, cuttings and seed of the Cherokee Rose, which I planted out with a view of forming a hedge. Not one of the seed ever came up—the cuttings all died in the course of the summer, and but one root survived the winter, to put out leaves the next spring, and this one died in the summer of 1846. In March of 1847, I brought with me again, from the south, the roots of the Cherokee Rose, but none of them survived the winter of '47 and '48. At the time of setting out my first Rose cuttings, &c., I planted out some figs, which, with slight protection, are still living, and have borne three crops of fruit. I am now, as

well as several of my neighbors, raising the Osage Orange for hedging, which in three or four years, it is thought, will turn all kinds of stock.

As you are in search of statistics, and all things else that are profitable and useful to the community in which we live, I send you No. 18 of Vol. I, of the Missouri Farmer—now extinct—in which is a report of the Wheat Growing Association of this county. It contains some statistics which may prove useful in the labors of your department. Respectfully, &c.,

B. A. ALDERSON.

Winfield, St. Charles County, (Mo.) Sept. 23d, 1848.

"Intimately connected with the transportation of produce from St. Charles and adjoining counties lying north of the Missouri, to the city of St. Louis, is a well constructed McAdamized road, and as an inducement for attention being turned to this subject, we have taken some time and care in ascertaining the probable amount of the surplus produce of St. Charles county, much of which goes to waste for want of proper facilities for transporting to market.

1st. Allow us in the first place to premise by saying, that until a good McAdamized road be constructed between the points above named—St. Louis and St. Charles—the farmers of St. Charles and adjoining counties cannot avail themselves fully of the high prices at all seasons of the year, no matter what *combinations* may be formed for the shipment of produce by the way of the two rivers. For we look upon this as a settled principle, that in order to realize the most advantageous prices for our surplus products, at all seasons of the year, transportation by the rivers, and upon a good turnpike road, must go hand in hand.

That, when a small amount of produce is to be forwarded, and a sufficient inducement is not offered in St. Charles to stop it there, the farmer may pass through and avail himself of the travel over a good road, where there will be neither stalling, prizing out of mud holes, nor sand banks, as is the case at the present time. This will render the small farmer as independent with his wagon, as the large one is with his boat load of produce. We say that we want the two modes of transportation—that the turnpike is essential to the promotion of our true interests—it will afford to us the choice of markets, and place us above the reach of imposition.

It cannot be supposed that St. Charles can purchase all the produce which would naturally pass through there. She would purchase to the extent of her wants for consumption and manufacture, and when forced to go beyond her immediate necessities, of course it would be at reduced prices; and who of us in the country, farmers or mechanics, would not do the same thing?

Then, brother farmers, we must not deal harshly with the citizens of St. Charles for doing the very thing which we would be guilty of, if placed in their situation, and in which thing, in fact, they are governed by the first law of nature—self-preservation.

2d. *Products of St. Charles County.*—The following is an approximate statement of the surplus products of St. Charles county, with their prices and value attached, together with the tonnage and probable travel over the road at the present time:

Wheat, 60,000 bushels at 60 cents,	$36,000
Corn, 100,000 bushels at 20 cents,	20,000
Oats, 25,000 bushels at 20 cents,	5,000
Barley, 5,000 bushels at 50 cents,	2,500
Rye, 3,000 bushels at 45 cents,	1,350
Potatoes, 2,000 barrels at 75 cents,	1,500
Apples, 8,000 barrels at $1 25,	10,000
Cheese, 30,000 lbs at 7 cents,	2,100
Butter, 25,000 lbs at 12 cents,	3,000
Eggs, 20,000 dozen at 5 cents,	1,000
Poultry, 3,000 dozen, at $1,	3,000
Hogs, 6,000 at $5,	30,000
Cattle, 2,500 at $15,	37,500
Tobacco, 600,000 lbs, part manufactured,	21,000
Hemp, 100 tons at $50,	5,000
Bagging, 10,000 yards at 25 cents,	2,500
Twine, 10,000 lbs at 30 cents,	3,000
Brooms, 3,500 dozen at $1 25,	4,375
Beans and Peas, 1,000 bushels at $1,	1,000
Washed Wool, 8,000 lbs at 20 cents,	1,600
Cider, 2,000 barrels at $3,	6,000
Horses and Mules, 600 at $30,	18,000
Sheep, 1,000 at $1 50,	1,500
Hides, 2,000,	2,500
Cabbage, Kraut and Sundries, say,	1,000
Total,	$220,425

Estimated tonnage of the above produce, as made by calculation, 14,076 tons, which, at 800 pounds per horse, would require to haul it to market, 35,190 horses.

We may safely double the above tonnage and horses for adjoining counties,

and those adjacent thereto, and we have for the tonnage 28,152 tons, and the horses required in the transportation, 70,380.

And from an estimate made, based on the receipts of the Ferry Boat at St. Charles, we may add to the above, travel of all kinds, for northern and western Missouri, equal to 30,000 horses; which, added to the above, gives a grand total of 100,380 horses, traveling over this road at the present time. And this business must continue to increase in a regular and rapid progression for many years to come.

3d. *Turnpike between St. Louis and St. Charles.*—From St. Louis to the Missouri river opposite to St. Charles, we will assume at the distance of nineteen miles; and the cost of a well constructed turnpike road, say at $6,000 per mile, which will give for the total cost, $114,000 ; and to this may be added $10,000 for ferry and toll gates—making total cost $124,000. For we hold it to be almost essential to the well being of the road and travel thereon, that it have its own ferry in connection at St. Charles, and that this ferry serve as one of the toll gates. Two other toll gates, one near St. Louis, and the other at a point about midway, would, perhaps, be sufficient; and let the travel and teamsters pay at the first gate at either end of the road, for the whole distance through, and take a ticket to be left at the last gate. This would save much time and trouble in making the necesssry change at each gate.

Now, as regards the profits or revenue, to a company: let us take the whole cost, $124,000, and

100,000 horses at 5 cents, in one direction,					$5,019
do.	do.	10	do.	do.	10,038
do.	do.	15	do.	do.	15,057
do.	do.	20	do.	do.	20,076

But it must be borne in mind, that the greater portion of this travel will pass in both dlrections, going and returning. And this is without including any travel for the county of St. Louis, which would be very considerable.

From the above exhibition, it would appear that with a road and ferry properly ordered and constructed, the present charges at the St. Charles ferry would about be sufficient for both ferriage and toll on a good McAdamized road.

4th. *Benefits to be derived from such a work.*—The construction of good roads from a commercial city into the interior of an adjacent country, gives an impetus to the energy and industry of its inhabitants far beyond, in a general way, the terminus of such improvements; and from the experience gained by other cities and sections of country in the east, as well as in the west, it is well known that the transportation and travel, in many cases, very soon doubles, thribbles, and even quadruples the ordinary amount of business on common roads—running far beyond the most sanguine speculations.

Were there any such inducement to the people of St. Charles and adjacent counties, as an easy and safe communication with St. Louis at all seasons of the year, it would operate as an inducement for emigrants to settle on our fertile lands, which are now lying waste; and thus give a new impulse to an increase of population. But to say nothing about an increase of population, the present cultivators would probably double the amount of their exports. At present, the inducement does not exist, which is necessary as a stimulant to an increased energy. Let the city of St. Louis do her part towards providing facilities for easy communication with the interior, and she may be greatly relieved of those sudden high prices which occur upon a change in the condition of the roads from dry to wet, and from dust to mud, knee deep to a horse, and especially when navigation is partially suspended by low waters in the upper rivers, or entirely closed by ice.

Good roads are to a city and commonwealth, what the arteries are to the body and heart of man. In either case, without an easy and free communication with the extremities, the whole system becomes diseased and enervated. With a city in a country like ours, her prosperity, if not her very existence, greatly depends on her being well provided with good roads. All of which is respectfully submitted.

B. A. ALDERSON, *Chairman.*

ART III.—EDUCATION.

In the September number of the Western Journal we gave the outlines of a system of public education, designed to embrace such individuals only as should be found destitute of the means of educating themselves. Looking alone to the consummation of an important work—one upon which, in our estimation, depends in a great measure the social happiness of man—we are indifferent in regard to the particular manner of carrying it on, provided any system which may be adopted shall not impose unnecessary burthens upon those who are taxed to support it. We are not desirous of being considered projectors of systems, and our scheme was thrown out more for the purpose of eliciting discussion, than with an expectation that it would meet the general approval of the public; and we are therefore the more gratified that it has had the effect of drawing a valuable paper from the President of the Board of Public Schools in St. Louis. The lively interest which that gentleman is known to take in the subject of education—the patient industry and indomitable perseverance with which he has long labored to promote this important object—entitle his

opinions to more than ordinary consideration. But while we commend his views* to the consideration of our readers, we desire to submit a few remarks in relation to the objections which he has suggested to our own plan. It appears that a similar system has been tried and proved unsuccessful in Virginia; and in reference to its failure there, the author says, "That happier results will follow the same system elsewhere, we cannot expect, because the very idea of being a pauper, and treated as such, is revolting to every man, woman and child of sensibility. However kindly and humanely the views of those who advocate the poor system may be, their labors must be in vain as long as humanity remains what nature has made it. As long as there is a manly feeling, an ennobling thought, the individual will shrink from personal degradation."

We admit that there is much force in these remarks, and the objection is serious and formidable; but we do not look upon it as insurmountable. It is not an inherent principle of man's nature that induces a sense of degradation whenever he receives a benefit from the State. So far from this being the case, there is perhaps no earthly thing that a very large portion of the human family so much covet as public benefits; and we have all known many individuals who have not scrupled to base their claims to office upon their poverty, as well in canvassing before the people, as in their applications for executive appointments. We must therefore conclude that, this sense of degradation which arises upon the reception of benefits from the State, is owing to accidental causes, and may consequently be prevented. Wherever it does arise, it may generally—if not always—be attributed to a mistaken notion of public opinion; and it may be affirmed that no one in the State of Missouri, whose opinion is worthy of the slightest degree of respect, would esteem an individual degraded because he had been educated at the public charge, provided no unfair means had been used to obtain the necessary appropriation. And if those whose condition requires public assistance were made sensible of this fact, then the cause of this morbid sensibility would cease, and it would be considered as reputable to solicit a place in the public schools on the ground of poverty, as to canvass for an office for the sake of its emoluments.

If it be true that this extreme sensibility does exist to the extent supposed, then let the system provide the means of removing it. Let

*Vide page 540.

the State be divided into convenient districts and appoint competent individuals to enlighten the general mind upon the subject, and if all good men will approve and give countenance to their exertions, we believe that this formidable objection would soon be overcome.

But, we ask, does not the same objection exist to that system which proposes to educate all the children in the State at the public charge? For in such case the poor would still receive their education from the bounty of the State, and we think that it would require a mind of more than ordinary powers of discrimination to perceive the reason why one would be degraded either in his own estimation, or in the opinion of others, by receiving his education from a fund especially assigned for that purpose, and yet be considered respectable at a school supported at the public charge, and towards which he had contributed nothing. In both cases he would attend school with those whose pecuniary condition was better than his own; but in neither would he pay anything, and his poverty would be as apparent in one case as in the other.

We wish to be understood as offering no objection to the system which proposes to teach every child in the State at the public charge; and if the legislature has nerve enough to provide the necessary means it will meet our most hearty approbation; but if that body should fail in this, we still hope that our plan of educating the poor may receive a favorable consideration. No plan, however, can be carried into efficient operation until the public mind is prepared to receive it—and the success of any system will always depend upon the zeal and vigilance of those who are appointed to carry it into effect.

We notice this subject now, lest it should be supposed that we have abandoned our former views as being impracticable. They were adopted in the beginning, as a substitute for a more thorough system; one, in substance, similar to that preferred by the President of the Board of Public Schools in St. Louis; and we were induced to limit our views to the plan submitted, from an apprehension that there was but little probability that the legislature would be willing to raise a revenue sufficient to carry into operation an efficient and thorough system; and we were unwilling to hazard every thing upon our own plan. We still occupy the same ground, and reiterate the opinion that the subject addresses itself to the conscience of every member of the legislature, and that they are bound by their official oath to provide, in some way, for the education of the poor.

ART. IV.—THE NORTH AMERICAN INDIANS.

A CHAPTER FROM A FORTHCOMING WORK BY J. LOUGHBOROUGH, ESQ., OF MISSOURI.

Author's Opportunities—No Scientific Classification—Differs from Others—Reasons why Indians have been so much misrepresented—Censure of their Maligners—Criticism upon certain Authors—Picture of a War Party—Of a Village Scene—Of a Religious Devotee—Motive in drawing these Pictures—Speculations on their former Condition—Universal Traits of Savage Tribes—Several Stages in the Progress of Civilization—Distinction between Savage and Civilized People.

In writing of the various Indian tribes occupying the great western territory, we would desire to be understood as speaking with much diffidence. A German traveler, who should visit the United States, without a knowledge of the English language, even with the assistance of the numerous countrymen he would see in all parts of the Union, would find himself at a loss to communicate to a European public, many of our ideas, habits, customs and peculiarities. In a lesser degree, this is the position of the author as respects the Indians. Their communities being small, their modes of life more simple and obvious to the spectator, and there being much less of intricacy and privacy in all their habitudes, than there is in an old and civilized community where education, science, and the arts have multiplied the objects of contemplation, the task of penetrating the philosophy of their existence and eviscerating the truth, is much easier of accomplishment, and requires far less of qualification in the observer, than in the case supposed. Few of those who have preceded us in this attempt, have been more fortunate in this respect than ourselves. Their reliance for the valuable truths they have communicated, has been principally upon personal observation of facts, and judicious inductions from them—rarely having had the assistance of competent interpreters through whom they could address inquiries in cases where the facts did not explain themselves. The only advantages we possessed were, that we felt a sincere desire to ascertain the truth for its own sake, and for the gratification of our own curiosity; that we traveled through the country without any connection with the trade or business of it; that our time and thoughts were consequently occupied in this as the leading object of interest; that we associated freely with traders, trappers, freemen and Indians, at all times, under all circumstances, in the forts, in the mountains, on the plains, and in the villages of permanent and wandering tribes; in hunting, fishing and amusements; that we did not hastily take for granted the facts we design communicating; but upon every opportunity repeated our questions, and subjected the matter to the test of multiplied inquiries through various individuals, and to comparison with considerations derived from various sources; that we took notes at the time, many of which we have preserved, but some of which are unfortunately lost; and finally, that we have conversed much with intelligent individuals who have visited the country, and elicited many facts which escaped our own observation, and have embodied the facts thus gathered in the following narrative.

In it we have also interspersed many anecdotes, traditions, and circumstances, illustrative of the main narrative; but the tone of the narrative itself, the positions in which they are found, and the whole context will indicate to the reader the degree of credence due them, and our own estimate of their value. They have been inserted because, otherwise, the narrative would be necessarily dull, and have the air of a regular dissertation; and this we have deemed it expedient to avoid in a work addressed to the general reader. But the facts themselves are in no wise shadowed by them, but on the contrary are greatly elucidated and brought in bolder and more distinct relief.

We have not attempted a philosophic classification of the topics treated of, because we do not consider it desirable in itself, nor practicable, if desired. With such a multitude of objects presented to the mind, who could undertake to trace all their connections, their points of resemblance and contrast, and distinguish between casual and accidental associations, and scientific relations and dependencies? We have never seen such a work, and we add confidently, that he who can accomplish it in reference to any distinct people, however humble, will have contributed more to the public instruction, than has hitherto been accomplished by all the writers on the social compact put together. The subjects introduced in the following pages, are therefore introduced in a popular and intelligible order, without any ambitious effort to give them extrinsic importance, or the work itself the character of a learned essay. Should we succeed in conveying a perspicuous and accurate account of the things we have seen and heard, in a manner sufficiently entertaining to tempt the reader to travel with us to the end, our purpose will be fulfilled, and our aspirations amply gratified.

In some respects we shall be found to differ from what has been the generally received opinion regarding the condition, and intellectual and moral qualities of the Indians. On these points our opinions have not been hastily made up, nor, we trust, tinctured with any desire to assume the honor of a discoverer; for probably what may have been true concerning other tribes, is not so of those of which we are treating; and possibly on these points, touching matters and opinions supposed to be common to all Indians, we, as well as others, may have been misled. We can only say that in those particulars our researches have been much more minute, because of the previous impression, and our conclusions are given, not so much with any expectation of acquiring that sort of notoriety sometimes resulting from singularity of opinion, (for we do not covet it,) as from a conviction of their truth, and a hope that if erroneous, others better qualified to judge, may correct the mistake.

Unlike all other people who have filled a bright page in the history of mankind, we have no national infancy, and dim, and indistinct and mysterious traditions to recur to for the materials of romance and poetry, and for allusions to embellish and illustrate our polite literature. We cannot trace our origin back until the light of history fades into twilight, and the light of imagination illuminates a boundless

space beyond, teeming with panoramic views of the wonderful, the heroic, and the beautiful. No expeditions for the golden fleece, or for the foundation or destruction of empires, are presented to us through ancient legends, in which the spirits of supernal worlds hover over and guide the daring adventurers in their toilsome way. No spots are here consecrated in the songs of bards, handed down through countless generations, as the scenes of brilliant victories achieved by exalted patriotism, in the conquest or defence of public liberty; or as the localities first touched by angel feet, with messages of heavenly instruction to point to us the true road to virtue, peace, contentment and happiness. No gothic castles, with towers, bastions, donjon keeps, and solid walls, frown in stern and solitary grandeur from our heights, around which cluster a thousand recollections of chivalrous emprise, splendid banquets and labyrynthine passages, the scenes of dark, mysterious, and sometimes bloody deeds, the offspring of jealousy, ambition or superstition. The Naiads have never disported themselves on our lakes and streams, nor the Dryads wandered through our endless forests. Fairy feet have not moved upon our broad savannahs to the sound of earthly music, pressing with "light fantastic toe," their green velvet carpet, spangled with flowers, with the silver lamp of the moon shedding over and around them a gorgeous drapery of filmy light. We have no dense antiquity, the atmosphere of which reflects the beams of science and exaggerates an illimitable world crowded with gigantic and spectral beings, to whose forms the imagination may attribute innumerable adventures, incidents and catastrophes. Even our historical records are sparse and comparatively barren of exciting topics. Hence it is, that educated as we have been according to the fashion of the people from whom we derive our origin; inheriting their opinions and prejudices, reading their books and studying their philosophy, our minds have received so much of early bias, and have become so prone to direct their energies and powers to the same objects, and the same means of attaining them, that we have not yet fairly discovered how much of original and peculiar advantage has been bestowed upon us by the hand of nature, in our boundless forests, broad lakes, winding rivers and pouring cataracts; nor what there may be of searching interest in the bosom of a society so wonderfully organized and harmonized as ours is. And hence it is, that in no branch of American literature has there been so manifest a failure, as in the attempts to portray Indian life and character; nor has there been in any other so much of gross ignorance, of fantastic conjecture, and unblushing mendacity as has been exhibited in hundreds of publications respecting the religion, the capacity, and the usages of the Indian tribes.

The tendency of our political institutions is to produce a general equality of condition, and therefore Europeans who visit us complain of the monotony and of the want of picturesqueness in our external appearance. It is true that under the remains of the feudal system, the contrasts are striking, and the organization of society presents much more that is brilliant and imposing than with us; but

when the traveler penetrates beneath the surface what does he find? Want, misery, ignorance, corruption, superstition, and meanness of spirit. In striking contrast to all this are the results of the workings of a social democracy. Instead of gorgeous exhibitions of power and splendor in the higher classes, and squalid poverty and slavishness of spirit in the lower, we present a state of things where the utmost liberty, consistent with public order, is constantly developing all the faculties and powers of the individual man, and holding out to each the prospect of acquiring whatever of distinction the advantages bestowed upon him by the hand of Nature may entitle him to. Originality and vigor of individual character is the natural result of our system; the imposing array of classes in which the individual distinction is lost, is the natural result of the European system. Which is preferable? For these reasons we anticipate the time when a new and original literature, adapted to, and in harmony with, our political system and peculiar condition, will supercede that which is now cultivated. Whether this will be accomplished by the slow and steady progress of time, or by the advent of some individual of transcendent genius to point us to the true objects on which to exercise our faculties, we will not undertake to predict. History affords examples justifying either conclusion. In the meantime, and until this great revolution is worked out, we must be content to seek in foreign chronicles and scenes subjects for our pens, or submit to see the truth of history and the integrity of existing facts, violated in bungling attempts to imitate the literature of an old people who have an exhaustless treasure of national traditions to resort to for appropriate themes.

The romance writers are wholly inexcusable for their misrepresentations of Indian character, because their ambition is, or ought to be directed to the attainment of enduring reputations, and they had it in their power to have informed themselves; and if they had done so, they would have obtained an abundant and rich supply of materials without doing injustice to the subject or contributing to mislead and misinform the public mind. As to those who steamboat it out to an Indian encampment, see the boys shooting at a mark with bows and arrows, or the women dressing a skin, and then return and publish a book saturated with diseased imagination and unmitigated falsehood, they have the excuse of stupidity, the love of notoriety, or the want of a dollar to plead; and if it were not for the deep injury they occasion the Indians, a generous public might afford to let them pass with whatever of profit or consequence their lucubrations are calculated to yield them.

The writer of historical romance may, if he please, dissever facts historically united, or join those historically dissevered; or he may even invent characters and facts both; but if he introduces facts inconsistent with the character of the lives and people, or characteristics variant from those of the people he is endeavoring to portray, the harmony of the picture is destroyed, and the spell upon the intellectual reader is broken. Sir Walter, the great founder of the school, was

well aware of these truths, and in no single instance has he done violence to the rules necessarily springing out of them. How would SALADIN look kneeling at a christian crucifix? or a Druidical incantation in a Saracen camp? or the Macedonion Phalanx in the wars of modern Europe? Again, the characters introduced may be exaggerated, and perhaps should be, but no new or imaginary principle of action should be represented as moving them; nor should their own be so far magnified as to run into caricature or be converted into the opposites. In all these particulars the painters of Indian character have most sadly blundered. They have been represented as capable of fixed and steady principles; as possessing ideas of religion and of a God and Providence which would have done honor to the most illustrious father of the church; as animated by the purest patriotism—as models of fidelity and truth in friendship—as moved by the most exalted sentiments in love, in parental duties, and in the council lodge—as addicted to a thousand forms of superstitution of which they never dreamed—as exercising rites and ceremonies analagous to those of the Greeks, and which never entered into their imaginations—and as entering upon war excited by the noblest sentiments of national honor. Their occasional high impulses have been substituted for the general tenor of their character, and the external brilliancy of some phases of their existence imagined to represent their daily lives. Things totally inconsistent with each other, and characteristics entirely fanciful have been so often repeated, and in so many forms, that the learned world who speculate and philosophize in cases where they should be observers instead of gatherers of facts have been greatly misled; and hypothesis without number have been set up to account for matters which never had an existence save in the imaginations of those who paint from conjecture, or who conjecture to batten upon credulity. On these subjects the poets have by the common consent of the world enjoyed an immemorial patent right; but we protest against the violation of it by the writers of historical romance, and more especially by those who attempt to give essays and remarks professedly designed to convey an accurate knowledge of facts. In too many instances this offence has been so glaringly perpetrated as to amount to an implied reflection upon the intelligence and judgment of the reader. A specification of individuals would perhaps be deemed invidious, and probably give rise to controversies as disagreeable to the parties engaged as they would be unprofitable to the public; but we apprehend that those who take an interest in this subject will readily remember many flagrant examples.

He who approaches an Indian village at the moment when a large war party have taken up their line of march into the enemy's country, will be struck with the brilliancy and beauty of the pageant. At a little distance the sounds of their rude and discordant instruments kindle associations intimately connected with classic and chivalrous recollections; and as the stately exhibition moves on, the majestic tread of their fiery steeds caparisoned with beads and dyed quills and hair of bright colors; the erect, manly, and graceful attitude of their riders, in

their profusely embroidered war shirts and leggins, their caps of eagle plumes tinged with variegated hues glittering in the bright sunlight, their flashing spears and battle-axes, and their numerous banners streaming to the wind, or waved in anticipated triumph, causes him to feel himself excited to the highest degree with sympathy for the heroic band; and he pictures to himself a long series of aggravated injuries and insults, perhaps threatening the very existence of a people with whom liberty and nationality are consecrated as holy things, and his imagination is strained to witness afar off the heroic daring of this Spartan band who have devoted themselves to the holy task of guarding another Thermopylæ, or sacrificing their own lives, each upon a hecatomb of their barbarous enemies. So deeply interested is he, and so far has his fancy run away with his judgment and his senses, that he suffers himself to be awakened with the greatest repugnance to the truth and unvarnished reality of the scene. But on nearer approach the splendid delusion slowly dissolves and he beholds—what?

The gorgeous and sparkling drapery instead of being devised to preserve order and discipline, and regularity in movement, and to excite emulation, and a spirit of rivalry in exalted deeds of patriotism, is studiously devised and executed to strike terror and horror into the heart of the beholder, and to engender in the wearer a burning volcano of furious and ferocious impulses, and bloody and ruthless passions. The standards wreathed with flowers and flaunting streamers have each upon their tips a place prepared to affix the scalps of their slaughtered enemies, torn reeking with the hot blood of life, ere yet the convulsed limbs of the victim have subsided into the moveless attitude of death. The slow and solemn chaunt of the war-song breathes out fierce and vindictive denunciations, and the habitations, the wives and the little ones of the anticipated victims are devoted to the flames and to torches unspeakably terrific, and the bloody fragments of their mangled carcasses are promised to the carion bird. As if by the waving of the wand of the enchanter, the spectator sees the images of Michael and the supernal host arrayed in heavenly vestments and panoplied in impenetrable armor in defence of the eternal throne of mercy and justice, suddenly transformed into Satan with his band of accursed and hideous outlaws, carrying murder and devastation into some peaceful and quiet village of weak and harmless beings, crouching in fancied security around their evening firesides.

Again, behold yon aged man bending over the couch of a pale and emaciated daughter, wiping away with his long gray locks the tears which start from his eyes, or pacing with hurried and uneven steps to and fro across his lodge. The medicine man with his decoction of herbs, kneels at her side, commending in repeated phrases, the sufferer to the Great Spirit, and imploring him to resuscitate the trembling powers of life, and restore the flower of the village virgins to health and happiness. Is not the father an object of deep compassion? The last "sole daughter of his house and heart" may ere long pass into the world of spirits and leave his hearth desolate, and his aged frame a bare and leafless trunk, with no

green branch springing from its roots in promise of succession. But look! the gentle mourner turns her anguished head, and the extreme points of a deep wound peep out from beneath the broad band of calico. How came it there? In a fit of savage fury the excited father has struck her with a battle-axe,—the wound has festered and threatens the existence of the moaning innocent. And why mourns he as one who has no hope? A trader, won by the sweet smile of the delicate daughter as she mingled with the romping children of the village, has offered him three gallons of alcohol for her, and the tears of the afflicted father are sadly mingled with apprehensions of the loss of the means of indulging in all the brutal luxury of an Indian frolic.

Once more. A great medicine feast is being held—one grand lodge has been erected as a banqueting hall. Abundance of buffalo meat is simmering in the camp kettles—a fat dog, devoted with many ceremonies, has been slain; the chiefs of the village have assembled to partake of the banquet. The women are actively stirring in preparation for the great festival, and the youths and boys are running and romping in athletic games, or scouring the plains around on their swift steeds. What object is it which attracts the stranger's attention, seated on an eminence afar off? It is a great chief, one who has won in war and many an hazardous adventure, a renown co-extensive with the language and territory of his tribe. He does not contemplate coming down to partake of the hilarious enjoyments of the day. No. He has been seated there for three days and nights, in one unchanged attitude the whole period, deeply engaged in supplication to the Great Spirit, and now as the broad flaming disc of the sun his residence slowly ascends to the zenith, his last fervent aspirations are ejaculated. But what is it he seeks of the Omnipotent? Perhaps the sins of his people have shocked his pious heart, and he prays him to turn them from their evil ways into the path of righteousness and peace. Possibly their ancient hunting grounds have been ruthlessly invaded by an overwhelming number of some hereditary enemy, and his kinded driven from the haunts of their dearest recollections, are now as strangers and sojourners in an unknown land, and he is imploring the divine power to restore them to their primitive domain; or his wife and children, struck with sore disease, languish in anxiety and pain, and he beseeches that they may be purged of the poisonous affliction, and again make glad his lodge fires. Ah, no! none of these things or others analogous to them have urged him to this voluntary sacrifice of food, sleep and drink, to appease the wrath of the Great Supreme. It is that he may be empowered with vigor and valor above his fellows, and with "a strong heart" to strike unmoved the cowering forms of vanquished men and helpless innocents, and gather bouquets of gory scalps to grace his triumphal entry into the village—to be hailed as the Great War Chief, and looked up to with mingled sentiments of admiration and terror.

Pictures such as these might be multiplied in indefinite numbers, but unless they were freely interspersed with such as exhibit many redeeming traits, and many

examples of great and magnanimous impulses, too frequently alas! perverted by superstition or prejudice, they would present a very inadequate, imperfect and unjust summary of the Indian character. They are here introduced to show how easily the casual observer may be deceived; how necessary it is to look upon this people from many points of view, and when engaged in a variety of avocations, ere we jump to conclusions, and undertake to speculate upon the mysteries of their life and being; and because the predominating fault hitherto, has been to exaggerate their virtues, and their intellectual gifts, and to throw far into the shade the dark back ground of their ignorance, their vices, and their crimes. There seems to have been a sort of national pride excited, to invest these primitive children of the soil with all the wonderful powers attributed by the vanity of other nations to their remote ancestry; and to fancy a thousand romantic adventures, and picturesque scenes, and marvellous exertions of skill and intellect, as having accompanied their sojourn in ages past, and as yet daily exhibited in their wars and amusement; as if the fact of our having robbed them of their natural rights could be softened and compensated by this free offering of admiration and respect, or that the fact of our having become their successors under such circumstances, entitled us to presume that the voice of history would be mute in future ages, and the world take it for granted that we were lineally descended from a race endowed with such high and brilliant capabilities. That at some former period the Indians of the United States, in many localities may have considerably advanced in arts and in arms, and may have enjoyed the blessings of some form of civilization peculiar to the positions in which they were placed, and the principles and passions engendered by a state of circumstances altogether beyond our comprehension, is more than probable; and indeed, the ruins of ancient works to be seen in many portions of the Union, strongly attest the fact, and justify the spirit of conjecture in its anxious efforts to solve the enigma. But that at any period within the range of history and observation, they have been found in a condition to justify us in denominating any portion of them a civilized, and not a savage people, in a situation where reason and judgment held the helm in their public affairs, and generous impulses were elevated into sentiments, and brutal appetites and instincts, curbed or repressed by a sense of duty, or the restraints of principles, we may safely and unhesitatingly deny. And truth, also, requires us to add that they are, on the contrary, and have been since our knowledge of them, steeped in a barbarism which, if not as degrading and revolting to the beholder as may be found in many other parts of the world, is as fixed, as obdurate, and as difficult of conquest as any form of it with which we are acquainted; and he who contributes in any manner towards a false estimate of their situation, whether it be done in a romance professedly portraying their manners and habits, in a hasty pamphlet struck off for the gratification of vanity, or in any of the thousand methods of perverting fact, is not only doing deep injustice to them by occasioning inappropriate legislation, and misdirected efforts of philanthropy, but it is throwing a mul-

titude of impediments in the way of those wise, and calm, and learned efforts, yet continuing to be made in the elucidation of their history, their traditions, their origin, progress, condition, and final destiny: Considerations such as these should impress us deeply with a sense of the responsibility we assumed, in thoughtlessly or imprudently touching subjects which so intimately concern the lasting welfare of many thousands of suffering fellow-creatures, and with a solemn estimate of the innumerable evils which may be generated from a single seed of error carelessly thrown upon the public mind, to be nursed into life by many cultivators, increasing in compound ratios through every revolving season. Nor is there any satisfactory apology to be made by these parties, other than that already alluded to; for if fiction is the object aimed at, the writers may find among the Indians themselves, an ample fund of traditions, strange adventures, and picturesque exhibitions, far surpassing all that they can hope to attain to by the utmost efforts of fancy; and if other motives govern the parties, in the name of reason and common sense, let them give us something like the worth of our money in descriptions of actual novelties and peculiarities, instead oi saddling us with a burthen of crude fancies, barren and brainless speculations, and unseminarred creations of dullness and ignorance, sufficient to break the back of a dromedary.

These remarks must be strictly limited to the parties against whom they are directed, for far be it from us to underrate the many able and valuable publications which have appeared on this subject from the pens of pious and zealous missionaries, intelligent travelers in the Indian country, and learned and philosophic scholars. We give to them all honor, and we are anxious to stimulate them to farther efforts by every encouragement in our power to bestow. But unfortunately, the great mass of the public take their impressions from other sources, and in foreign countries, even those whose talents and position place them in the van of the great movement of modern civilization, have too often suffered themselves to rely upon the very authorities against which we are protesting; and hence the propriety, and even the necessity of the observations we have made.

The characteristics of all savage tribes, their intellectual powers, their moral impressions, their religious opinions, all their daily habits of life, their manners, their dress, their domestic implements, their arms, their methods of hunting, and stratagems in war, have their types in the nature with which they are surrounded, or are immediately derived to them from the inductions and analogies which may be made from its surface; and if we only knew intimately, what that nature is in a specified district, there would be little difficulty in arriving at all the inferences necessary to be made, to explain and illustrate their condition, provided the facts respecting that condition were previously thoroughly understood, and emigration or conquest had not intervened. It is our ignorance of the localities in which they are found, and of the real facts respecting savage characteristics, which constitute the whole difficulty. As to their governments, when any are found to exist, we are not inclined to attribute their origin to the same causes. Our impression is,

that they originate in necessity, and imply an exercise of the rational faculty, and more or less of conventional arrangement. But we think we can find enough in what is already collected and classified in reference to savage people, to justify the induction now made, and if space permitted, we could easily illustrate the idea by a multitude of examples. A few are here added to render the idea clear and distinct, and to point out the tendency of it in tracing the subject through all its details.

In the temperate zone, especially its southern border, the reason and the higher faculties, such as taste, imagination, and the sense of the beautiful have ever been found to be most early developed. In Greece, especially, they were carried to the highest point of cultivation; and here, accordingly, we find all that is grand and magnificent in natural forms, relieved and adorned by every phasis and color of the beautiful. We are not justified in asserting that these great faculties are not common to the inhabitants of the north, but we are, in concluding that the rude, waste, and barren objects, and the terrible operations of the elements prevented their development in an early stage of society, and suggested on their surfaces, to uneducated people, images of power and of terror which it required ages to obliterate by deeper study of Nature, and by introducing the vivid light of southern climes to illuminate the dark scenery of the north. Where do we find examples of moral rectitude? In the north, if not prevented by sanguinary superstitions, because here the passions are not deeply excited; in the temperate regions, if the locality be healthful and the soil moderately good; and more especially if the natural propensities are elevated and chastened by a pure taste, founded on natural models of the beautiful. Where do we look for striking instances of moral depravity? In the interior of Africa, where a rich soil and a burning sun forces into life a boundless profusion of vegetation, and stimulates into vitality appetites and passions generative of every variety of disease and vicious inclination. In the north the forms of superior beings assume all the attributes of power and terror; in the temperate regions they are chastened into grace and beauty; and in the torrid zone they become loathsome and horrid personifications of disease and of the physical evils incident to the climate. The Esquemaux feeds upon the Walrus, the Whale, and the Seal, for no vegetation springs into being to furnish forth his meal. The Indian of the western prairie principally subsists upon the Buffalo, and when hemmed in by more powerful tribes turns to the soil for grain and pulse; whilst the Arab of the desert puts up with the milk of his Camels. Their other habitudes may all be traced in the same way.

In the territories of the United States we have no examples of the most depraved and immoral conditions of savage existence, but all the successive stages of intellectual advancement, from the wretched digger who lives in holes and caves and subsists upon things which may be acquired without any other assistance than his limbs; to the Cherokee who is rapidly transforming into the entirely civilized and christian state. When left altogether to themselves, it is extremely

difficult to follow them through the slow and tortuous course; but if assisted by the guarded intercourse, the example, and the science of other more fortunate people, their progress is clear, and greatly accelerated. As education and the arts advance, ideas are multiplied, language enriched with new terms, knowledge of Nature extended into relations beneath the surface, and intellectual pursuits originated, until the new and multiplied combinations modify or efface the barbarous characteristics, and if followed by emigration or conquest, nearly all that once distinguished them is obliterated. And at that stage of their progress when a clear conception of moral relations and duties are introduced, and they begin to act from a sense of duty and conscientious conviction of obligation, we may (and not until then) fairly recognize them as a civilized people. The dominion of Reason and the higher faculties is then fully established over the errors, the blindness, the superstition and the vindictive passions of barbarous life. Civilization itself may be justly defined as a conquest of the understanding and the moral sense over the passions and the appetites, and it exists in as many degrees as mark the other state. A clear conception of moral duties denotes its commencement, and the practice of them its progress; whilst in savage nations the first dawn of this conception indicate the starting point and full knowledge of them—the period of their transition.

Such reflections as these might be amplified and run into many details, but we are not writing an essay. Our only purpose is to awaken in the mind of the reader a proper train of thought, and to suggest such channels as we think it would be profitable they should be directed into, in order to enable him to appreciate whatever is of value respecting the Indian tribes, and to prevent his suffering himself to be misled by fanciful speculations and crude conjectures.

ART. V.—PERRY'S LEAD MINES.

Desiring to collect reliable information in regard to the quantity of Lead and other metals produced in Missouri, we addressed a number of gentlemen who are engaged in mining, requesting them to favor us with a statement of the annual products of their respective establishments; and also to give us a particular description of their ore and of other minerals in their immediate vicinity; with such other facts in relation to the economy of mining and the mineral resources of the State, as they might deem useful or interesting to the country.

In answer to these inquiries we have received from John Perry, Esq., one of the most extensive operators in the State, the following communication in relation to the product of his mines, in the counties

of St. Francis and Washington; and we are also under further obligations to him for the very interesting description of his lead mine in St. Francis, furnished at his request by Mr. JOSHUA COATSWORTH, a practical miner of that establishment. We are also indebted to the politeness of Mr. Perry for a number of interesting specimens from his mines, some of which we shall endeavor to describe in a subsequent number of the Journal.

We trust that stimulated by Mr. Perry's example, other gentlemen will in due time furnish us with similar information, and that they will give us a statement of the number of hands employed at the different mining establishments, and also the number of furnaces, as well as the quantity of metal produced.

PERRY'S MINES, St. Francis County, Mo.,
September 30th, 1848.

Messrs. TARVER & RISK:

Gentlemen—I herewith enclose you a partial description of my mines in this county, written out by Mr. JOSEPH COATSWORTH, a practical miner who has been digging on my land for several years, and is well versed on the subject of minerals, mines and mining. The ore raised on my mines in this county yields (taking the average of the year round,) about 73 per cent., that is 73 lbs. lead for each 100 lbs. mineral cleared and prepared for smelting. These mines produce from 1,250,000 to 1,500,000 pounds of ore annually; the ore of best quality taken from the large and most productive caves will yield from 76 to 80 per cent. on the first process, but as a good deal of the ore obtained in the course of a year is from weak leads and dry bone caves, which has to be prepared by burning, pounding and sieving, this description of ore will not yield more than 65 to 66 per cent.—so that taking the year round I find the product to be about 73 per cent. on the whole mineral, in lead. In years past this mine has yielded as much as 2,500,000 lbs. of ore annually, but there were a greater number of hands engaged at that time by one-half than what there are now. I have brought a box of specimens from the mines with me, which you can have by sending to my house on Locust, between Sixth and Seventh streets. The foregoing description relates exclusively to my mines in this county; in Washington county, where the largest portion of my mineral lands lay, the description would in many respects be different—the ore there having in general been obtained much shallower, rarely ever found at a greater depth than from 25 to 35 feet, and not often found under the rock, owing I presume to the fact that few miners in these mines are willing to risk the expense of sinking shafts to the proper depth through the rock to get regular leads, their chief object being to get the gravel and float mineral which lie above the rock in the clay, and is generally embedded in white and glass tiff or spar; the latter being

transparent and always breaking in diamonds or tubes—the former is found in large bodies and is an article much used in the manufacturing of white lead, the substance is almost as heavy as the lead, and may be as good for aught I know as the pure white lead; if it be used as a deception it cannot be detected until after the painter has laid it on, so near does it approach to the pure lead when skilfully prepared. There is a manufactory in Jefferson county, on Big River, adjoining Washington county, in successful operation, preparing the tiff or spar for use. Some is hauled directly to St. Louis in its natural state.

The mineral in Washington county, where it is obtained in large quantities, will yield about the same per centage as the mineral does that is procured in this vicinity. The lead is the purest and softest made in the United States, and I have no hesitation in saying that for white lead and glass manufactories, it is surpassed by none. Respectfully, your ob'dt serv't,

JOHN PERRY.

PERRY'S MINES, St. Francis County, Mo.,
September 28th, 1848.

Messrs. TARVER & RISK:

Gentlemen—JOHN PERRY, Esq., has handed to me a note addressed to him by you, in which information is solicited relative to the mines on his land, &c. So far as your queries relate to these mines, I shall endeavor to give you all the information in my power: not having any personal acquaintance with his mines in Washington county, I did not wish to say any thing from mere report. I have the same observation to make with respect to Mine "La Motte," and the Iron Mountain.

1st. You ask, what is the nature of the tift or gangue of the leads?

A combination of blende, iron ore, sulphur, lime, and occasionally mendac and sulphur of zinc.

2d. What is the nature of the rocks?—do they exist as incrustations, or do they combine with the ore?

Silecious and calcareous limestone in alternate crusts. Though the rocks may form various receptacles for the deposit of mineral matter, they do not combine with the ore. Although the deepest shaft is not over 175 feet deep, the formation has been penetrated to the depth of 255 feet, and is arranged in clear and well defined strata, varying from three to seven feet in thickness, of the silecious class, with thin alternate crusts of calcareous limestone, making their appearance as we descend, at rather irregular distances of five, ten or fifteen feet apart.

These strata of calcareous rocks seldom exceed two feet in thickness, and the one overlaying the caves, is of a remarkably fine grain and texture, and has frequently a black, smoky appearance in the joints or natural fractures, which intersect the crust.

Specimen No. 1, is an example of the kind.

The shafts are from 80 to 175 feet deep. This difference in depth results from the elevation or depression of the point selected to operate upon. For the caves appear to be on one uniform level, and are filled with the rider or gangue of the leads, consisting of slate, ochre and tumbling rock, in the space not occupied by the ore. The ore is found in horizontal and arched sheets, and in tabulary masses, in a menstruum of a soapy consistence, technically termed "tallow slate," of nearly every imaginable shade and color. The white tallow slate is usually esteemed the menstruum which affords best promise of productiveness. Though we have a criterion in quality, we have no uniform rule as to color. In one location, white slate may be the best medium; another, and neighboring strip of productive caves may furnish an equally nutritive menstruum in pink, red, or yellow slate. Different localities appear to be capricious in their choice of color, and in some measure the quality, of this menstruum.

However this may be, this substance certainly forms one of the most wonderful productions of nature. It often so nearly resembles the animal substance, as to be mistaken for it by strangers at the mines; but here the resemblance ends.

It is of an alkaline quality, and undoubtedly the menstruum of the ore, from the fact, that we frequently find radiated, vertical, and horizontal spears, isicles, or crystals of the carbonate of lead, and of the sulphate of lead, shooting through the slate, resting immediately upon the sheeted and tabular masses of the leads. We are not aware that any chemical analysis has been had, accounting, satisfactorily, for the difference of the coloring, or the basis of the substance, and think an analysis would afford some interesting chemical phenomena, and valuable facts for the mineralogist.

We shall forward you some specimens of the different kinds, and would suggest that such an analysis might prove not only important in a scientific point of view, but of public utility. The specimens we send may be dry when they arrive, but immerse them in water and you will readily perceive their quality. We send, also, specimens of the rock overlaying the caves. The flowers, you will perceive, on the superfices of the fractures, in their original position, appear almost uniformly inverted. Had they pointed upwards, like the flowers produced by caloric on window glass in frosty weather, we might have supposed their origin from gaseous processes going on in the caves, but from their inversion it would appear that the exhalations are attracted in the direction of the caves, and that the caves become organs of ventilation, respiration and absorption to the superincumbent and surrounding *formation*, as well as points of attraction and deposit; that the process of crystalization of the minerals deposited in them, is carried on by the joint attractions of liquid mineral deposits, absorbed perspirable mineral matter, and gaseous inhalations from the surrounding formation downwards and siderally, currents tending to the caves; and we think that portions of the white slate, lying contiguous or next the lead ore, will bear some affinity to the carbonate

of lead, or contain at least a component part of its basis. Applied to fruit trees, it is one of the best stimulents we are acquainted with; it effaces grease spots effectually from buckskin, and is consequently in request by the miner, both at his toilet, and as a good sign, or the menstruum of his leads.

Lead ores are the only ores found in sufficiently large quantities to merit attention. Zinc, cobalt, mundac, carbonate and red oxyde of lead certainly exist, and the presence of copper is slightly indicated in small hand specimens, picked from the rider or gangue of the leads. The native carbonate of lead is usually found in small masses, or attached as a coat or covering to the sheeted or tabular masses of galena, in caves remarkable for their productiveness. The red oxyde, or "red paint," is frequently though not always found, in thin horizontal strips upon the gangue or rider of the leads, as we approach our strips of productive caves; and if, on leaving a rich neighborhood, it makes its appearance, it is ever hailed as the harbinger of barrenness. Thus, it often forms a line of boundary around our good and prolific patches.

There are two classes of the lead ore. The broad cubical grained galena ore, and a grade of the argentiferous ore, or what we denominate steel ore, from its granular structure. An opinion has been advanced, that the last may produce from four to eight ounces of silver to the ton of lead, smelted from ores of this class *only*. But this is merely speculation, based upon the granular structure of the ore. If any one would take sufficient interest in the subject to procure an assay, it would be well to remark how far these opinions are correct. You enquire the influence which other metalic compounds, mineralized with our ore, has upon the process of smelting. The galena, it is almost needless to say, is mineralized with silex, sulphur, iron and arsenic, and leaves, at the close of the first process, a residuum we term "slag." This, carried through another process at the "Scotch Slag Hearth," leaves again a vitrified substance not yet ascertained, &c.

Though not requested, an inquiry may be made as to the shape of the caves. They are various—cylindrical, oblong, eliptical. Occasionally a cavity will perforate the overlaying strata. These we denominate chimneys, and when they are bearing chimneys, are always esteemed a windfall—"a consummation always hoped for." They frequently penetrate the overlaying strata ten, twelve to eighteen feet, and connect with an upper set of caves. The first penetrated in the discoveries of these mines, (but which have been little worked in consequence of the subsequent discovery of the caves,) was eighteen feet deeper.

The form of the caves is most commonly an elipsis, the plane being parallel with the plane of the horizon—sometimes not over fifteen inches in width—when they may gradually expand to ten or twelve feet in width, and then contract again to three or four feet. Places occur where these wide spaces are low and flat, and again, when the caves may attain an altitude of ten to twenty feet.

Some have been ascertained to rise perpendicularly, others spirally to the surface. In nearly every instance the incrustations immediately over these places

appear broken, with open or easy fractures, hence such points are usually selected to sink upon, for the better ventilation of the mines, convenience, &c.

It appears to be the opinion of some miners that the incrustations dip or incline to the west. But this opinion, if founded upon observation, must have been limited to particular points, for there is not any uniform dip so far as the majority of miners have noticed. But basins and caps may occur in the neighborhood of each other, inclining slightly or dipping abruptly in abrupt slips to nearly every point of the compass. It would appear that the horizontal superfices of the crusts are of an undulating wave-like character, consequently we may thus account for the lurches up and down which the caves frequently make to nearly every imaginable point, and from the further fact that the shafts on the opposite sides of the hill on which the mines are situated, go to a depth which approximates so nearly to dead level, that we are compelled to assume that with our present knowledge, so far as the strata are concerned, there is not any perceptible dip or inclination. It would further appear to be the opinion of some miners that the richness of these mines and that of the Messrs. VALLE adjoining, is the result of the intersection of two or more productive strips of bearing caves, the strips of uncertain width all concentrating at that point.

These strips of fruitful ground appear as they leave or diverge from this point, less productive, so far as they have been proved; and the intervening strips of barrens wider in proportion to the distance from this basin or deposit thus indicated, where the richest leads have been found.

It is further noticed that the caves rise concavely on all sides from this deposit. The caves on one side of the ridge may, notwithstanding their serpentine windings, have a general bearing south-east to north-west, while on another strip of large bearing caves the course of the principal leads is east and west; and again on the opposite side of the hill the large bearing caves have a course nearly north and south. In one place in these mines the general course of the best leads appears to correspond with the bearing of the main dividing ridge (intersecting part of this county) for a distance of nearly two hundred yards, when they appear to be intersected from another spur, by large caves of a different bearing, diverging at this point to east, west, north and south.

If we have not satisfied you, come and see for yourselves—we will use you well. In the meantime permit me to assure you of our personal good will for your undertaking, and subscribe ourselves in the name of our miners,

Yours truly, ST. FRANCIS.

ART. VI.—EDUCATION.

BY JOHN H. TICE,

President of the St. Louis Board of Directors of Public Schools.

HEREAFTER the philosophic historian will designate the American Revolution as a new era in the history of mankind, and the starting point of the new, and higher institutions that are now spreading over the world. To be sure the Revolution did not originate those mighty principles, that are now shaking and crumbling the thrones of the old world; for their seeds were sown when humanity was created, and the long interval that had elapsed had given them time to germinate and grow. That event, however, first gave them predominance and subjected an empire to their sway. But human nature remains the same since as prior to that event. It has not changed in its original constitution, but it has put forth new branches, indicating a larger growth and expansion, from which a new series of developments in human character and conduct must follow. In other words, the people of the American confederacy passed from being ruled by others, to self-government. Hereditary misrule was abolished, and an effort made to enthrone justice, truth, benevolence and reverence in the hearts of the people, and give them authoritative sway over human conduct. This then was the idea of the Revolutionary fathers, and is the idea and mission of American institutions. How shall this idea be realized, and by what means shall this mission be accomplished, are the problems that demand a solution.

Unquestionably to realize any idea, there must be a proper training and education of the people in reference to its realization. Give me the idea a people set out with, and I will mark out the course it must pursue to develop it. Or give me the idea, and the course that a people is pursuing, and I will predict the success or failure it will meet in the realization of the idea it started with. If then the idea of the American people is the supremacy of truth, justice, benevolence and reverence, and that self-government consists in conforming social and individual action to them, then must we train our people with reference to the development and realization of this idea, or the experiment of self-government must fail, and the end be, that we have only passed from one kind of misrule, to be the subjects and slaves of another. A dynasty can be changed in a day, but a revolution that not only changes the surface of society, but its internal organization by operating among the primordeal elements of human character, is the work

of time. The oak is the result of the expansion of the principles once unfolded in the acorn. But for their expansion, for centuries a succession of influences—light, heat and moisture—conducive to their growth have been in operation. So it is with society. Its existence presupposes a purpose. This purpose constitutes its destiny, and this destiny it must achieve. What purpose then was the creation of humanity to subserve? Ascertain that purpose, and you will have ascertained the destiny of humanity—you will know what influences must be put in operation to achieve it. But whether you aid, or not, ultimately that destiny will be achieved. The great law of humanity is constantly tending to its achievement, in spite of all that men through ignorance, interest, or perverseness may do to retard or oppose it. Man cannot change any of the laws of nature; what they originally were, they must always remain, and in the end they will accomplish their purpose. In physics this has long been acknowledged, but in ethics, men have disputed it. In physics no Xerxes any longer attempts to chain the sea, or a Canute to command the ocean to roll back its waves. But in ethics we have those who have devised a thousand and one contrivances to fashion and mould society to suit their own interests or caprices. Foolish and futile attempt. In humanity nothing can be imposed from without, but all must be developed from within. The word "educate" presupposes this: from the Latin *e* out, and *duco* to lead, or bring. To educate then, means to bring out, or develop internal principles. To educate successfully then, we must clearly understand the internal principles of the mind, the laws of their development, and their result when embodied in perfect institutions. Having ascertained this, we must shape our system of education to effect it, and as we then will be in harmony, and coôperate with the supreme law of humanity, we cannot fail, for Heaven with its omnipotence stands pledged to give us success. The highest point of human ken, and the noblest conception of human intellect as the ultimate destiny of man, is the complete fraternization, or establishment of the true brotherhood of humanity. This we call as we did above, the reign of the principles of truth, justice, benevolence and reverence, and their authoritative sway over human conduct. If such be our conceptions of human destiny, we necessarily will educate our children with reference to realize it: and the development of the principles above indicated, will have a prominent place in our system of education.

Physical education must not be neglected, nor that which will develop the physical resources of nature. A healthy and vigorous body, and a knowledge of the laws of the Universe above, around, beneath

and within us, are as essential, as a knowledge of the laws of the moral nature of our species. Yea, are of primary importance. History, perhaps, teaches nothing clearer, than that the moral culture of a people depends much upon the development of the physical resources, and to the circumstances with which it is surrounded. But be this as it may, nothing is more certain, than that whatever conception a people may have of its own mission, or of the duty and purposes of humanity, it always will educate its children in reference to performing, or answering it.

Among the ancients, war was considered the first duty and greatest glory of man. But war as then carried on, was mainly decided by muscular strength and agility. Javelins were to be hurled and falchions and slings wielded; but the distance and accuracy with which one could be hurled, and the vigor and dexterity with which the others could be wielded, depended upon the muscular developments of the human frame and the training and practice each soldier had. Of so much importance was a training of youth to serve the purposes of war considered, that some writers state that in the Balearic Isles, mothers were in the habit of suspending the breakfast of their children on the loftiest boughs of trees from whence the children had to bring it with their slings, or go without it. Whenever we look into ancient history we find that the invigoration of the frame, and the growth and strengthening of the limbs, constituted the chief object of national policy. Emulous and ambitious youths regarded bodily strength, agility, hardihood and the power of physical endurance as the subjects of the loftiest aspirations, and their possession as the pinnacle of greatness. These then were the accomplishments sought by barbarian youths; and they were indispensable in the then rude state of society. Man was then little else than a ferocious animal, preying upon his fellows. Brute force decided everything, and the strength of an ox was of more value, and secured more consideration to its possessor, than mental vigor, or the noble qualities of the souls. The body then was everything, the mind, nothing; consequently the one was cultivated and exercised in every possible way to invigorate, strengthen and harden it. But the mind or soul was too insignificant to attract attention, much less to raise the question of its cultivation. Power then was the exertion of physical force, and physical force was in proportion to the strength of the body. No one dreamed that by cultivating the mind, the secrets of nature itself would be revealed, and all her hidden stores of power exposed—that by this means there would be an accretion of power to man, far surpassing the accumulated strength of the

whole human race, could all its vigor be concentrated in a single arm. That by using the agencies of nature, which needed but the application of certain chemical and mechanical conditions, man should be invested with a power, such as no Grecian or Roman conqueror, with the myriads of human beings he led forth to battle, ever wielded or possessed. Gunpowder, steam, electricity and magnetism, have all revealed their wonders to the enquiring mind, and under its guidance applied their superhuman powers to transform and ameliorate the condition of man. While bodily strength was cultivated, the earth was the theatre for its action, and it filled it with blood and woe, and sowed it with tears. Since intellectual strength is gaining an ascendancy, light, and joy, and truth are extinguishing wrath, and hate, and lust, and selfishness, and transforming earth into an Eden.

The political or social, physical and moral conditions of mankind have all felt the ameliorating influence of mental cultivation. Improvements in either, have acted and re-acted upon each other, so that all have advanced and kept pace together. The arts of peace and civilization have occupied men's minds. Instead of plundering each other, men have seized upon the great treasure-house of nature, and have appropriated to themselves, from that exhaustless source, greater riches than Midas coveted, or Crœsus possessed. Some have delved into the bowels of the earth and have brought up thence the wealth laid up of old in subterranean chambers, even now of unknown extent and richness. Others, by the facilities and security afforded, have caused the earth to yield abundant and unwonted harvests. Some again have ploughed every ocean that spans the globe, visited every country, and searched out every port on its circumference, and brought "home for sustenance or superfluity" the natural and artificial productions of every people and every zone. Some applied themselves to the construction of labor-saving machinery, which have produced cheap manufactures of endless variety, prodigality and richness. And others again have seized upon the unchained and untangible elements, and pressed them into service so as to convey intelligence from the remotest parts of the globe with the swiftness of light, and almost endowing man with ubiquity. These are some of the stores of wealth and power, which the ancients left intact, because they neglected the cultivation of that part of man, which alone could enable them to avail themselves of them

A change in the training of men, has wrought, as it were, a change in their destiny and nature. One training transformed them almost into demons, while another is now almost making them gods. To give

an impulse to this higher destiny, and to develop this new awakened nature, is the purpose of education. Whatever inventions, improvements, or progress, the present or past generations have made, were the result of their mental culture, and that they have not accomplished more, is owing that to accomplish more, a greater amount of knowledge, and a more thorough insight into the laws of nature were necessary, than they possessed or we possess. If the work of improvement is not to stop with us, but is to be carried forward by our children then we must give them greater facilities, and a superior education than we had. Such seems to be the convictions of the American people. They all seem to have an impression that intelligence will promote the happiness of their children, and that better faculties and a greater share of education ought to be furnished to the coming generation than the present enjoyed. Hence every State in the Union has made some provision for the support of schools, though few have adopted any system, and fewer have carried out what they have adopted. Wherever a system has been adopted, it was the result of the efforts of a few philanthropic minds, and if the beneficent effects contemplated by the benevolent projectors and framers of these systems have not followed, it is owing to the crude state in which they have been brought forward, or the little general interest taken in them by the community. I shall therefore resume the consideration of the various provisions made by the several States and their systems of edu-tion, which being understood and appreciated by the reader, I shall give a *projet* for the organization and support of Common Schools in Missouri.

ART. VII.—BASIN OF THE GREAT SALT LAKE.

There is perhaps no part of the globe which is situated in a climate suited to the habitation of civilized man, that has so long remained unexplored; as the Great Basin in Upper California. And although embracing an area equal to about four of our largest States, we are indebted to Col. Fremont for nearly every reliable fact that has been published in regard to it. The place which it occupies on the map has usually been indicated by the words "the great desert," and we have always regarded it as the most formidable obstacle to the intercourse between the States and the Pacific Ocean in that direction. But so far from this being the case, it now appears that the passage

through the Great Basin is likely to be the most agreeable portion of the route; and that, although its general character is that of sterility, yet there is a considerable quantity of fertile soil with a climate in some parts as agreeable, perhaps, as any on the continent. Since the publication of Col. Fremont's account of his visit to the Salt Lake in 1843, we have often thought of this Great Basin as the last place on the continent that would attract the emigrant. But scarcely one short year had elapsed after the publication of Col. Fremont's expedition, before we heard of the movement of a colony of Mormons to the Great Salt Lake. And on the first of April, 1848, Col. Fremont says: "They had 3,000 acres in wheat, seven saw and grist mills, 700 houses in a fortified enclosure of sixty acres, stock, and other accompaniments of a flourishing settlement." And if these people should carry out their plan of settlement as promulgated by their principal men in the beginning of the present year, we may expect to see a population in the Great Basin sufficient to form a State, in ten years, perhaps, from the present time. And should it be found practicable to locate the "Pacific Railroad" across the Great Basin, it will require but little more time to travel from St. Louis to the Salt Lake, than it now requires to go to Cincinnati; and our market will be supplied with the fine salmon trout of that region with as much facility as it is now supplied with fish from Lake Michigan. And instead of fishing in the muddy ponds in the vicinity of St. Louis, at the risk of catching the ague, parties will repair to the Great Basin to angle for the salmon trout in the pure snow water that flows from the Sierra Nevada.

The following description of the Sierra Nevada, and the Great Basin, is taken from Col. Fremont's Geographical Memoir upon Upper California, published by order of the Senate of the United States, under a resolution of the 5th of June, 1848:

SIERRA NEVADA.

This Sierra is part of the great mountain range, which, under different names and with different elevations, but with much uniformity of direction and general proximity to the coast, extends from the peninsula of California to Russian America, and without a gap in the distance through which the water of the Rocky Mountains could reach the Pacific Ocean, except at the two places where Columbia and Frazer's river respectively find their passage. This great range is remarkable for its length, its proximity and parallelism to the sea coast, its great elevation, often more lofty than the Rocky Mountains, and its many grand volcanic peaks, reaching high into the region of perpetual snow. Rising singly,

like pyramids from heavily timbered plateaux, to the height of fourteen and seventeen thousand feet above the sea, these snowy peaks constitute the characterizing feature of the range, and distinguish it from the Rocky Mountains and all others on our part of the continent.

That part of this range which traverses the ALTA CALIFORNIA is called the *Sierra Nevada*, (Snowy Mountain,) a name in itself implying a great elevation, as it is only applied, in Spanish geography, to the mountains whose summits penetrate the region of perpetual snow. It is a grand feature of California, and a dominating one, and must be well understood before the structure of the country and the character of its different divisions can be comprehended. It divides California into two parts, and exercises a decided influence on the climate, soil, and productions of each. Stretching along the coast, and at the general distance of 150 miles from it, this great mountain wall receives the warm winds, charged with vapor, which sweep across the Pacific Ocean, precipitates their accumulated moisture in fertilizing rains and snows upon its western flank, and leaves cold and dry winds to pass on to the east. Hence the characteristic differences of the two regions—mildness, fertility, and a superb vegetable kingdom on one side, comparative barrenness and cold on the other.

The two sides of the Sierra exhibit two distinct climates. The state of vegetation, in connection with some thermometrical observations made during the recent exploring expedition to California, will establish and illustrate this difference. In the beginning of December, 1845, we crossed this Sierra, at latitude 39 deg., 17 min., 12 sec., at the present usual emigrant pass, at the head of the Salmon Trout river, forty miles north of New Helvetia, and made observations at each base, and in the same latitude, to determine the respective temperatures; the two bases being, respectively, the *western* about 500, and the *eastern* about 4,000 feet above the level of the sea; and the Pass, 7,200 feet. The mean results of the observations were, on the *eastern* side, at sunrise, 9 deg.; at noon, 44 deg.; at sunset, 30 deg.; the state of vegetation and the appearance of the country being at the same time, (second week of December,) that of confirmed winter; the rivers frozen over, snow on the ridges, annual plants dead, grass dry, and deciduous trees stripped of their foliage. At the *western* base, the mean temperature during a corresponding week was, at sunrise, 29 deg., and at sunset, 52 deg.; the state of the atmosphere and of vegetation that of advancing spring; grass fresh and green, four to eight inches high, vernal plants in bloom, the air soft, and all the streams free from ice. Thus December on one side of the mountain was winter; on the other it was spring.

THE GREAT BASIN.

East of the Sierra Nervada, and between it and the Rocky Mountains, is that anomalous feature in our continent, the Great Basin, the existence of which was advanced as a theory after the second expedition, and is now established as a geographical fact. It is a singular feature: a basin of some five hundred miles

diameter every way, between 4,000 and 5,000 feet above the level of the sea, shut in all round with mountains, with its own system of lakes and rivers, and having no connection whatever with the sea. Partly arid and sparsely inhabited, the general character of the Great Basin is that of a desert, but with great exceptions, there being many parts of it very fit for the residence of a civilized people; and of these parts, the Mormons have lately established themselves in one of the largest and best. Mountain is the predominating structure of the interior of the Basin, with plains between—the mountains wooded and watered, the plains arid and sterile. The interior mountains conform to the law which governs the course of the Rocky Mountains and of the Sierra Nevada, ranging nearly north and south, and present a very uniform character of abruptness, rising suddenly from a narrow base of ten to twenty miles, and attaining an elevation of two to five thousand feet above the level of the country. They are grassy and wooded, showing snow on their summit peaks during the greater part of the year, and affording small streams of water from five to fifty feet wide, which lose themselves, some in lakes, some in the dry plains, and some in the belt of alluvial soil at the base; for these mountains have very uniformly this belt of alluvion, the wash and abrasion of their sides, rich in excellent grass, fertile, and light and loose enough to absorb small streams. Between these mountains are the arid plains which receive and deserve the name of desert. Such is the general structure of the interior of the Great Basin, more Asiatic than American in its character, and much resembling the elevated region between the Caspian Sea and northern Persia. The rim of this Basin is massive ranges of mountains, of which the Sierra Nevada on the west, and the Wah-satch and Timpanogos chains on the east, are the most conspicuous. On the north it is separated from the waters of the Columbia by a branch of the Rocky Mountains, and from the Gulf of California, on the south, by a bed of mountainous ranges, of which the existence has been only recently determined. Snow abounds on them all; on some, in their loftier parts, the whole year, with wood and grass; with copious streams of water, sometimes amounting to considerable rivers, flowing inwards, and forming lakes, or sinking in the sands. Belts or benches of good alluvion are usually found at their base.

Lakes in the Great Basin.—The Great Salt Lake and the Utah Lake are in this Basin, towards its eastern rim, and constitute its most interesting feature—one, a saturated solution of common salt—the other, fresh—the Utah about one hundred feet above the level of the Salt Lake, which is itself four thousand two hundred above the level of the sea, and connected by a strait, or river, thirty-five miles long.

These lakes drain an area of ten or twelve thousand square miles, and have, on the east, along the base of the mountain, the usual bench of alluvion, which extends to a distance of three hundred miles, with wood and water, and abundant grass. The Mormons have established themselves on the strait between these two lakes, and will find sufficient arable land for a large settlement—important

from its position as intermediate between the Mississippi Valley and the Pacific Ocean, and on the line of communication to California and Oregon.

The Utah is about thirty-five miles long, and is remarkable for the numerous and bold streams which it receives, coming down from the mountains on the south east, all fresh water, although a large formation of rock salt, imbedded in red clay is found within the area on the southeast, which it drains. The lake and its affluents afford large trout and other fish in great numbers, which constitute the food of the Utah Indians during the fishing season. The Great Salt Lake has a very irregular outline, greatly extended at time of melting snows. It is about seventy miles in length; both lakes ranging nearly north and south, in conformity to the range of the mountains, and is remarkable for its predominance of salt. The whole lake waters seem thoroughly saturated with it, and every evaporation of the water leaves salt behind. The rocky shores of the Islands are whitened by the spray, which leaves salt on every thing it touches, and a covering like ice forms over the water, which the waves throw upon the rocks. The shores of the lake in the dry season, when the waters recede, and especially on the south side, are whitened with encrustations of fine white salt; the shallow arms of the lake, at the same time, under a slight covering of briny water, present beds of salt for miles, resembling softened ice, into which the horses' feet sink to the fetlock. Plants and bushes, blown by the wind upon these fields, are entirely encrusted with crystalized salt, more than an inch in thickness. Upon this lake of salt the fresh water received, though great in quantity, has no perceptible effect. No fish, or animal life of any kind, is found in it; the *larvæ* on the shore being found to belong to winged insects. A geological examination of the bed and shores of this lake is of the highest interest.

Five gallons of water taken from this lake in the month of September, and roughly evaporated over a fire, gave fourteen pints of salt, a part of which being subjected to analysis, gave the following proportions:

Chloride of sodium, (common salt,) - -	97.80	parts.
Chloride of calcium, - - - - - -	0.61	"
Chloride of magnesium, - - - - - -	0.24	"
Sulphate of soda, - - - - - - -	0.23	"
Sulphate of lime, - - - - - - -	1.12	"
	100.00	

Southward from the Utah is another lake of which little more is now known than when Humboldt published his general map of Mexico. It is the reservoir of a handsome river, about two hundred miles long, rising in the Wahsatch Mountains, and discharging a considerable volume of water. The river and lake were called by the Spaniards, *Severo*, corrupted by the hunters into *Sevier*. On the map, they are called *Nicollet*, in honor of *J. N. Nicollet*, whose premature death interrupted the publication of the learned work on the physical geography

of the basin of the Upper Mississippi, which five years of labor in the field had prepared him to give.

On the western side of the basin, and immediately within the first range of the Sierra Nevada, is the Pyramid Lake, receiving the water of Salmon Trout river. It is thirty-five miles long, between four and five thousand feet above the sea, surrounded by mountains, is remarkably deep and clear, and abounds with uncommonly large salmon trout. Southward, along the base of the Sierra Nevada, is a range of considerable lakes, formed by many large streams from the Sierra. Lake Walker, the largest among these, affords great numbers of trout, similar to those of the Pyramid Lake, and is a place of resort for Indians in the fishing season.

There are probably other collections of water not yet known. The number of small lakes is very great, many of them more or less salty, and all, like the rivers that feed them, changing their appearance and extent under the influence of the season, rising with the melting of the snows, sinking in the dry weather, and distinctly presenting their high and low water mark. These generally afford some fertile and well watered land, capable of settlement.

Rivers of the Great Basin.—The most considerable river in the interior of the Great Basin is the one called on the map Humboldt river, as the mountains at its head are called Humboldt River Mountains—so called as a small mark of respect to the "Nestor of scientific travelers," who has done so much to illustrate North American geography. without leaving his name upon any one of its remarkable features. It is a river long known to hunters, and sometimes sketched on maps under the name of Mary's, or Ogden's, but now for the first time laid down with any precision. It is a very peculiar stream, and has many characteristics of an Asiatic river—the Jordon, for example, though twice as long—rising in mountains and losing itself in a lake of its own, after a long and solitary course. It rises in two streams in mountains west of the Great Salt Lake, which unite, after some fifty miles, and bears westwardly along the northern side of the basin towards the Great Sierra Nervada, which it is destined never to reach, much less to pass. The mountains in which it rises are round and handsome in their outline, capped with snow the greater part of the year, well clothed with grass and wood, and abundant in water. The stream is a narrow line, without affluents, losing by absorption and evaporation as it goes, and terminating in a marshy lake, with low shores, fringed with bulrushes, and whitened with saline encrustations. It has a moderate current, is from two to six feet deep in the dry season, and probably not fordable any where below the junction of the forks during the time of melting snows, when both lake and river are considerably enlarged. The country through which it passes, (except its immediate valley,) is a dry sandy plain, without grass, wood, or arable soil; from about 4,700 feet, (at the forks,) to 4,200 feet, (at the lake,) above the level of the sea, winding among broken ranges of mountains, and varying from a few miles to twenty in breadth. Its own immediate valley is a rich alluvion, beautifully covered with blue grass, herd grass, clover, and other

nutricious grasses; and its course is marked through the plain by a line of willow and cotton wood trees, serving for fuel. The Indians in the fall set fire to the grass and destroy all trees except in low ground near the water.

The river possesses qualities which, in the progress of events, may give it both value and fame. It lies on the line of travel to California and Oregon, and is the best route now known through the Great Basin, and the one traveled by emigrants. Its direction, nearly east and west, is the right course for that travel. It furnishes a level unobstructed way for nearly three hundred miles, and a continuous supply of the indispensable articles of water, wood, and grass. Its head is towards the Great Salt Lake, and consequently towards the Mormon settlement, which must become a point in the line of emigration to California and the lower Columbia. Its termination is within fifty miles of the base of the Sierra Nevada, and opposite the Salmon Trout river pass—a pass only seven thousand two hundred feet above the level of the sea, and less than half that above the level of the basin, and leading into the valley of the Sacramento, some forty miles north of Nueva Helvetia. These properties give to this river a prospective value in future communications with the Pacific Ocean, and the profile view on the north of the map shows the elevations of the present traveling route, of which it is a part, from the South Pass, in the Rocky Mountains, to the Bay of San Francisco.

The other principal rivers of the Great Basin are found on its circumference, collecting their waters from the Snowy Mountains which surround it, and are, 1. Bear River, on the east, rising in the massive range of the Timpanogos Mountains and falling into the Great Salt Lake, after a doubling course through a fertile and picturesque valley, two hundred miles long. 2. The Utah River and Timpanaozu or Timpanogos, discharging themselves into the Utah Lake on the east, after gathering their copious streams in the adjoining parts of the *Woh-satch* and Timpanogos Mountains. 3. Nicollet River, rising south in the long range of the *Wah-satch* Mountains, and falling into a lake of its own name, after making an arable and grassy valley, two hundred miles in length, through mountainous country. 4. Salmon Trout River, on the west, running down from the Sierra Nevada and falling into Pyramid Lake, after a course of about one hundred miles. From its source, about one-third of its valley is through a pine timbered country, and for the remainder of the way through very rocky, naked ridges. It is remarkable for the abundance and excellence of its salmon trout, and presents some ground for cultivation. 5. Carson and Walker rivers, both handsome clear water streams, nearly one hundred miles long, coming, like the preceding, down the eastern flank of the Sierra Nevada and forming lakes of their own name at its base. They contain salmon trout and other fish, and form some large bottoms of good land. 6. Owen's River, issuing from the Sierra Nevada on the south, is a large bold stream, about one hundred and twenty miles long, gathering its waters in the Sierra Nevado, flowing to the southward, and forming a lake about fifteen miles long, at the base of the mountain. At a medium stage it is generally four or five

feet deep, in places fifteen; wooded with willow and cotton wood, and makes continuous bottoms of fertile land, at intervals rendered marshy by springs and small affluents from the mountain. The water of the lake in which it terminates has an unpleasant smell and bad taste, but around its shores are found small streams of pure water with good grass. On the map this has been called Owen's River.

Besides these principal rivers issuing from the mountains on the circumference of the Great Basin, there are many others, all around, all obeying the general law of losing themselves in sands, or lakes, or belts of alluvion, and almost all of them an index to some arable land with grass and wood.

Interior of the Great Basin.—The interior of the Great Basin, so far as explored, is found to be a succession of sharp mountain ranges and naked plains, such as have been described. These ranges are isolated, presenting summit lines broken into many peaks, of which the highest are between ten and eleven thousand feet above the sea. They are thinly wooded with some varieties of pine, (*pinus monophyllus* characteristic,) cedar, aspen, and a few other trees; and afford an excellent quality of bunch grass, equal to any found in the Rocky Mountains. Black tailed deer and mountain sheep are frequent in these mountains; which, in consideration of their grass, water and wood, and the alluvion at their base, may be called fertile, in the radical sense of the word, as signifying a capacity to produce, or, bear, and in contradistinction to sterility. In this sense these interior mountains may be called fertile. Sterility, on the contrary, is the absolute characteristic of the valleys between the mountains—no wood, no water, no grass; the gloomy artemisia the prevailing shrub—no animals, except the hares, which shelter in these shrubs, and fleet and timid antelope, always on the watch for danger, and finding no place too dry and barren which gives it a wide horzon for its view and a clear field for its flight. No birds are seen in the plains and few on the mountains. But few Indians are found, and those in the lowest state of human existence; living not even in communities, but in the elementary state of families, and sometimes a single individual to himself—except about the lakes stocked with fish, which become the property and resort of a small tribe. The abundance and excellence of the fish, in most of these lakes, is a characteristic; and the fishing season is to the Indians the happy season of the year.

Climate of the Great Basin.—The climate of the Great Basin does not present the rigorous winter due to its elevation and mountainous structure. Observations made during the last expedition, show that around the southern shores of the Salt lake, latitude 40 deg. 30 min., to 41 deg, for two weeks of the month of October, 1845, from the 13th to the 27th, the mean temperature was 40 deg. at sunrise, 70 deg. at noon, and 54 deg. at sunset; ranging at sunrise, from 28 to 57 deg.; at noon, from 62 to 76 deg.; at four in the afternoon, from 58 to 69 deg.; and at sunset, from 47 to 57 degrees.

Until the middle of the month the weather remained fair and very pleasant. On the 15th, it began to rain in occasional showers, which whitened with snow

the tops of the mountains on the southeast side of the lake valley. Flowers were in bloom during all the month. About the 18th, on one of the large islands in the south of the lake, *helianthus*, several species of *aster*, *erodium cicatarium*, and several other plants, were in fresh and full bloom; the grass of the second growth was coming up finely, and vegetation, generally, betokened the lengthened summer of the climate.

The 16th, 17th, and 18th, stormy with rain; heavy at night; peaks of the Bear river range and tops of the mountains covered with snow. On the 18th, cleared with weather like that of late spring, and continued mild and clear until the end of the month, when the fine weather was again interrupted by a day or two of rain. No snow within 2,000 feet above the level of the valley.

Across the interior, between latitudes 41 and 38 deg., during the month of November, (5th to 25th,) the mean temperature was 29 deg. at sunrise, and 40 at sunset; ranging at noon (by detached observations) between 41 and 60 degrees. There was a snow storm between the 4th and 7th, the snow falling principally at night, and sun occasionally breaking out in the day. The lower hills and valleys were covered a few inches deep with snow, which the sun carried off in a few hours after the storm was over.

The weather then continued uninterruptedly open until the close of the year, without rain or snow; and during the remainder of November, generally clear and beautiful; nights and mornings calm, a light breeze during the day, and strong winds of very rare occurrence. Snow remained only on the peaks of the mountains.

On the western side of the basin, along the base of the *Sierra Nevada*, during two weeks, from the 25th *November* to the 11th *December*, the mean temperature at sunrise was 11 degrees, and at sunset 34; ranging at sunrise from zero to 21 deg. and at sunset from 23 to 44 deg. For ten consecutive days of the same period, the mean temperature at noon was 45 deg., ranging from 33 to 56 degrees.

The weather remained open, usually very clear, and the rivers were frozen.

The winter of '43–'44 within the basin, was remarkable for the same open, pleasant weather, rarely interrupted by rain or snow. In fact there is nothing in the climate of this great interior region, elevated as it, and surrounded and traversed by snowy mountains, to prevent civilized man from making it his home, and finding in its arable parts the means of a comfortable subsistence; and this the Mormons will probably soon prove in the parts about the Great Salt Lake. The progress of their settlement is already great. On the 1st of April of the present year, they had 3,000 acres in wheat, seven saw and grist mills, seven hundred houses in a fortified enclosure of sixty acres, stock, and other accompaniments of a flourishing settlement.

Such is the Great Basin, heretofore characterized as a desert, and in some respects meriting that appellation; but already demanding the qualification of great exceptions, and deserving the full examination of a thorough exploration.

ART. VIII.—THE RISE, PROGRESS, AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

SCULPTURE.

As it is not our province in these papers to go into academic details, nor elaborate the theories of art as taught by the schools, we cannot trace them with that minutæ, which would be required were we addressing a class of students, but simply content ourselves with a cursory glance at their rise, progress, and influence, and leave the reader to examine for himself, or not, at his own pleasure. If in these short and hastily written sketches, the writer has had the good fortune to have been the means of creating the slightest consideration, he shall esteem himself amply compensated for the task he has undertaken, and think he has done some good service to his fellow-citizens.

In that volume to which the civilized world looks for history, laws and instruction both civil and divine, we have the earliest accounts of works of sculpture. That this art was practised at a very early period there can be no doubt, for we find that when God commanded Jacob to return to the land of Canaan, his wife Rachel carried away the idols of her father Laban. And when Moses was on the Mount receiving the tablets of stone from the hand of the Almighty, Aaron and the Israelites, made and worshipped a golden calf. "This violent tendency to idolatry," says Flaxman, "accounts for the strict injunctions, under which they were bound, by divine command, not to worship any image: whilst the same authority commanded statues of cherubim to extend their wings over the ark of the covenant, and that the veil of the tabernacle should be adorned with cherubim. This proves the command was not against images themselves, but the abuse of them to impious and idolatrous purposes, and, on the contrary, is a testimony of approbation of such works, when representing the ministers of God's Providence, or the guardians of his holy laws; and indeed it is a most gratifying reflection to a practitioner of the sister arts, that the Almighty condescends to employ them as the handmaids of religion, and that he particularly inspired Aholiab and Bezalel to produce the most admirable and lively decorations of angelic forms for his tabernacle. Of these nothing remains but description; all the glories of Solomon's Temple, and that raised after the captivity, with all their beauty and splendor, are swept away by the same appointment which decreed the Jews should no longer be a nation. Were we to search with the most scrutinizing diligence for some specimens of ancient Jewish art, only three could be produced,—the piece of money called a shekel, bearing a cup on one side, and an almond branch on the other; the candlestick with seven branches; and the table of shew-bread, on a bass-relief under the arch of Titus."

Of the excellence of their statues, we have no means of judging except from

analogy with Egyptian art, copious examples of which, exist in the present day. From the great number and variety of the sculptures of the Egyptians, from the most rude to the most perfect, there is every reason to believe we have specimens of its earliest and latest periods.

In Egypt sculpture assumed a magnificence commensurate with all the other works of that singular people, which were ever upon a grand and imposing scale, well calculated to convey sublime and imposing ideas, and although many of their works were of colossal dimensions, their size did not prevent their artists from giving them as high a degree of finish as those destined for close and minute inspection. Even those which were placed in the highest and most elevated positions had as fine execution and as great a polish as the smallest statues usually receive. One of the finest specimens extant, is the head of the statue of Memnon, now in the British Museum, whither it was taken by Belzoni, in 1818. This learned traveler in speaking of the removal of the Colossus, says: "As I entered these ruins (the Memnonian,) my first thought was to examine the colossal bust I had to take away. I found it near the remains of its body and chair, with its face upwards, and apparently smiling on me, at the thought of being taken to England." "I must confess," continues this traveler, "that my expectations were exceeded by its beauty, but not by its size. I observed, that it must be the same statue as is mentioned by Norden, lying in his time with its face upwards, which must have been the cause of its preservation. I will not venture to assert who separated the bust from the rest of the body by an explosion, or by whom the bust has been turned face upwards. The place where it lay was nearly on a line with the side of the main gateway into the temple; and as there is an other colossal head near it, there may have been one at each side of the doorway, as they are to be seen at Luxor and Carnack."

Of one of these statues it is said that when the sun rose and shone upon it, it uttered a joyful sound, but when it sat, the sound was mournful, and that it shed tears and responded in seven verses. Until the fourth century after Christ this sound continued to be heard. Concerning its nature, and the story of Memnon there have been many hypothesis. Pansanius and Strabo relate some curious accounts of this statue and the sounds which it uttered. It is supposed to represent a hero in the act of worshipping the sun.

The wonderful works of the Egyptians are not so much to be admired for the artistic knowledge they display, as for the patient labor and mechanical skill evinced in their execution. The material on which they operated consisted of but four kinds, sandstone, limestone, breccia, and granite. How they managed to cut such hard substances as the last named two, is matter of surprise in the present day, for it is generally believed that the sculptor's tools in those days were of copper, as iron was then unknown to them.

In the gallery of the Louvre, in 1830, I saw some Egyptian statues, executed in exceedingly hard stone, one, to the best of my recollection had for its basis,

silex, it was semi-transparent and so very hard that I could not conjecture by what process it was produced.

Belzoni, in his work on Egypt, says: "Carved works were very common, and in great perfection, particularly in the proportion of the figures; and it is to be observed, that the Egyptians were unacquainted with anatomy, yet in these as in their statues of marble, they preserved that great simplicity peculiar to themselves, that is always pleasing to the beholder."

All their larger figures were generally executed in calcareous stone, basalt and alabaster As yet the antiquarians have had no evidence that bronze was used by the Egyptians; nor have we any accounts of its being used until the arts had attained considerable eminence in Greece.

In the cultivation of the various arts which distinguished the Egyptians, it is not improbable they were preceded by the Phœnecians, Tuskans, and Persians.

Flaxman says, "most of their great works are mentioned by the ancient writers as being done in the reign of Sesostris, and afterwards, Sesostris lived in the reign of Rehoboam, king of Israel, about the time of the Trojan war, or 1000 years before the christian era, which shews that the arts of Egypt and Greece were in a progressive state of improvement at the same time, and from the Greeks residing with them to study theology, philosophy and science,—from the great intercourse, political and commercial, between the two countries from the heroic times —from the Greeks being long settled in the city of Naucratis and other parts of Egypt, we may fairly conclude their communication in arts was just as free as in other concerns, which seems the more likely, as there is considerable resemblance in the features and contour of the early Greek and Egyptian statues."

The same author again remarks, "The enormous works of Egypt have struck every foreign visiter with wonder and awe, from Herodotus down to the members of the French Institute." Herodotus says "one of their buildings is equal to many of the most considerable Greek buildings taken together," and M. Ripand observes, "those works are so prodigious, they make every thing we do look little;" and indeed if we consider the execution of a statue sixty-five feet high in so hard a material as granite, the boldest heart would be appalled at the incalculable labor and difficulties of the work.

"In their basso-relievos and paintings which require variety of action and situation, are demonstrated their want of anatomical, mechanical and geometrical science relating to the arts of painting and sculpture.

"The king or hero is three times larger than the other figures; whatever is the action, whether a siege, a battle, or taking a town by storm, there is not the smallest idea of perspective in the place, or magnitude of figures or buildings. Figures intended to be in violent action are equally destitute of joints, and other anatomical form, as they are of the balance and spring of motion, the force of a blow, or the just variety of line in a turning figure. In a word, their historical art was

informing the beholder in the best manner they could, according to the rude characters they were able to make.

"From such a description it is easy to understand how much their attempts at historical representations were inferior to their single figures.

"What has been hitherto said of Egyptian Sculpture, describes the ancient native Sculpture of that people. After the Ptolomies, successors of Alexander the Great, were Kings of Egypt, their Sculpture was enlivened by Grecian animation, and refined by the standard of Grecian beauty in proportions, attitude, character, and dress.

"Osius, Isis and Orus, their three great divinities, put on the Macedonian costume, and new divinities appeared among them in Grecian forms, whose characteristics were compounded from materials of Egyptian, Eastern and Grecian theology and philosophy."

COMMERCIAL STATISTICS.

Owing to a press of matter selected for the October number, we failed in giving that completeness to the commercial statistics of New Orleans, for the year ending on the 31st of August, 1848, which we desired. We have, therefore, continued them in the present number.

COMMERCIAL STATISTICS OF NEW ORLEANS.

Comparative Prices of Middling to Fair Cotton at New Orleans, on the first of each month during a period of five years—together with the total receipts at New Orleans, and the total crops of the United States.

	1847–48.	1846–47.	1845–46.	1844–45.	1843–44.
	Cents.	Cents.	Cents.	Cents.	Cents.
September,	10⅝@12	7½@ 9	7¼@8⅜	6 @7½	5¾@ 8
October,	10 @11	8¾@10	6⅞@8⅜	5¾@7⅛	7 @ 8¾
November,	7½@ 8⅛	9 @10½	7 @8	5⅛@6⅞	6¾@ 8
December,	6½@ 7¼	9 @10¼	6½@7⅝	4¾@6¼	7⅛@ 8⅜
January,	6½@ 7¾	10 @11¼	6½@7⅞	4⅜@6¼	8¾@10¼
February,	6⅝@ 8	11½@13	7⅜@7¾	4¾@6½	8¾@10
March,	6½@ 7⅞	9½@11	6½@8¼	5 @6½	8¼@ 9¾
April,	6¼@ 7⅝	10⅝@11⅜	6⅝@8⅜	5¼@7½	7½@ 9¼
May,	5 @ 6½	10⅝@12¼	6½@8½	5¾@7¼	6¾@ 8¾
June,	5½@ 7¼	9⅞@11¾	6½@8	5⅞@7¼	7 @ 8¾
July,	5⅔@ 7¼	9¼@10¾	6½@8	6⅛@7½	6½@ 8¼
August,	5⅜@ 7½	10½@12	7 @8½	6¼@7¾	6½ *a* 8
	Bales.	*Bales.*	*Bales.*	*Bales.*	*Bales.*
Rec'ts N. O.	1,188,733	707,324	1,053,633	979,238	910,854
Crop of U. S.	2,350,000	1,800,000	2,100,537	2,400,000	2,030,409

Comparative Statement of the Receipts, Exports and Stocks of Cotton, at the following places at the dates annexed.

PORTS.	Stocks on hand Sept. 1		Received since 1st Sept.		Exp'rted from Sept. 1, '47 to dates.					Exported from Sept. 1, '46, to dates in '47.					Stocks on hand and on ship board.	
	1847.	1846.	1847.	1846.	To Great Brit'n.	To Frnce	To oth F. ports.	Total forei'n ports.	U. S. n'thn ports.	To Great Brit'n	To Frnce	To oth F. ports.	Total Foreign Ports.	U. States Northern Ports.	1848.	1847.
New Orleans.....Aug. 31	23493	6332	1188733	707324	654083	140968	154807	949858	252039	385368	95719	83920	565007	159501	37401	23493
Mobile.....Aug. 22	24172	7476	436930	322750	224673	61212	29070	314955	107938	127518	38638	19784	185940	97853	28062	27607
Savannah.....Aug. 24	7787	5922	241065	233790	119897	5177	1411	126485	93946	107227	11150	944	119321	96089	9450	5661
Charleston.....Aug. 25	29655	8709	260223	348976	153090	29579	16177	198846	97835	121662	51452	17222	190336	156040	11603	28478
Florida.....Aug. 12	2108	1088	159817	127918	40338	....	7674	48012	98360	30896	2592	3238	36726	73029	2345	2285
Va. and N. Carolina..Aug. 12	448	200	7598	17203	68	....	364	432	1958	152	....	....	152	6417	700	650
Texas.....Aug. 29	32	1500	39742	9500	....	....	772	772	28289	....	....	543	543	8080	747	32
New York.....Aug. 14	83259	46539	....	....	108049	37992	41730	187771	....	49440	36111	34898	120449	....	56960	108013
Other ports.....Aug. 12	26682	20950	....	....	7420	1412	2646	11478	....	947	425	686	2058	....	....	....
TOTAL BALES.....	197636	98716	2325168	1767461	1307618	276349	254651	1838609	680365	823210	236087	161235	1220532	597009	147267	196219
Total to dates, 1846-'7.	98716	....	1767461	....	823210	236087	161235	1220532	597009	....	....	....	....	....	196219	....
Increase this year.....	98920	....	557647	....	484408	40253	93416	618077	83356	....	....	....	....	....	....	....
Decrease.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	48952	....

☞ We have taken from New Orleans the amounts received from Mobile, Florida and Texas. Also, from Charleston the receipts from Savannah—and Mobile the receipts from Florida.

The exports from Georgetown to New York are added to the Charleston receipts, and the exports from Darien to Liverpool and New York are added to the Savannah receipts.

The exports from Mobile and Florida to New Orleans, and those from Savannah to Charleston, have been deducted from exports to northern Ports.

Comparative Prices of Molasses on the Levee, on the 1st of each month for 5 years.

	1847-8. Cents.	1846-7. Cents.	1845-6. Cents.	1844 5. Cents.	1843-4. Cents.
September	28 @32	15 @22	24 @27	26 @28	18 @21
October	28 @32	20 @25	21 @24	24 @26	23 @24
Nove ber	22½ @ 23	26 @26½	21 @22	20 @21	14 @20½
December	19¼@19½	23 @23½	20 @..	20½@20¾	20 @21
January	17 @17¼	24½@25	21 @21½	16½@17½	22½@23
February	17 @19	27 @..	21 @21¼	14½@16	22 @23
March	15 @21	29 @29½	22½@23	20½@21	23 @24
April	15 @21	25 @29	25 @25½	25 @26	23 @25
May	12 @16	26 @30	23 @23½	24 @27	25 @26½
June	15 @20	26 @30	18 @22	18 @27	24 @25
July	15 @20	26 @30	15 @20	20 @27	24 @26
August	15 @20	28 @31	15 @21	26 @28	25½@26¼

Comparative Prices of Flour on the first of each month, for five years.

	1847-8. Dollars.	1846-7. Dollars.	1845-6. Dollars.	1844-5. Dollars.	1843-4. Dollars.
September	4¾@6	3½@4	3½@4½	— @6	4½@4¾
Octob r	4 @5	4 @4⅝	3⅝@4¼	3⅞@4⅜	4 @4⅞
November	5¼@5⅝	5 @5½	4½@5¼	4 @4¼	4 @4½
December	5⅛ @6	4⅝@5⅝	7¼@8½	4 @4⅜	4⅛@4½
January	5½@6	4⅝@5¼	5¾@7	4⅜@5¼	4⅜@4½
February	4¾@5¼	6 @6½	5 @6¼	3¾@4½	4⅛@—
Mar h	5 @5¾	5½@6¼	4⅝@5¼	4 @4¾	4¼@4⅝
April	5¼@5⅝	6 @6¼	4½@5	3⅞@4⅛	4¼@4½
May	4¼@5¼	5¾@6½	4 @4¾	3⅞@4½	4⅛@4¼
June	4¼@4¾	6¾@7½	3⅜@4¼	3¾@4⅝	3⅝@3⅞
July	4¼@5	6 @7	4 @4	3½@4⅝	3½@4½
August	4 @4⅝	4 @5½	3½@4	4 @4⅝	4 @5¼

Comparative Prices of Corn, in sacks, on the first of each month, for five years.

	1847-8. Cents.	1846-7. Cents.	1845-6. Cents.	1844-5. Cents.	1843-4. Cents.
September,	50*a*55	36*a*40	40*a*42	43*a*44	42*a*43
October,	50*a*75	60*a*65	35*a*38	40*a*—	37*a*40
November,	41*a*50	58*a*75	45*a*50	43*a*45	34*a*35
December,	45*a*50	60*a*70	80*a*82	34*a*37	43*a*45
January,	54*a*60	55*a*67	55*a*63	37*a*38	36*a*38
February,	40*a*55	80*a*90	40*a*50	38*a*40	32*a*33
March,	36*a*42	75*a*90	47*a*52	40*a*41	35*a*35
April,	30*a*38	80*a*95	42*a*50	35*a*36	40*a*42
May,	22*a*28	55*a*70	40*a*50	35*a*38	40*a*41
June,	32*a*36	65*a*80	35*a*40	28*a*32	33*a*35
July,	33*a*39	65*a*75	25*a*32	30*a*34	40*a*43
August,	36*a*42	40*a*50	30*a*35	34*a*36	40*a*45

Comparative Rates of Freight on Cotton and Tobacco to Liverpool, Havre and New York, on the first of each month, for the past two years.

COTTON—PER POUND.

	1847-48.			1846-47.		
	Liverpool.	Havre.	N. York.	Liverpool.	Havre.	N. York.
September,	1-2d	—ct	1-2ct	1-2d	1 1-16	1-2ct
October,	5-6	1 1-4	1-2	1-2	1 1-16	1-2
November,	5-6	1 1-4	5-8	3-8	7-8	3-8
December,	1-2	1	1-2	1-2	1	1-2
January,	7-18	1	3-8	5-6	1 1-8	1-2
February,	1-2	1	1-2	9-16	1 1-4	3-4
March,	15-32	15-16	1-2	1	2	1 1-8
April,	9-16	1	1-2	5-8	1 3-4	3-4
May,	9-16	0	5-8	5-8	1 1-4	3-4
June,	7-16	0	3-8	9-16	1	3-4
July,	3-8	0	3-8	5-8	1 1-4	3-4
August,	5-16	0	1-4	5-8	1 1-4	5-6

TOBACCO—PER HOGSHEAD.

	1847–48.			1846–47.		
	Liverpool.	Havre.	N. York.	Liverpool.	Havre.	N. York.
September,	40s 0d	$0 00	$5 50	40s 0d	$0 00	$3 87½
October,	40s 0d	0 00	4 75	40s 0d	0 00	3 87½
November,	40s 0d	0 00	6 00	37s 6d	0 00	3 87½
December,	40s 0d	9 50	4 75	00s 0d	0 00	3 25
January,	40s 0d	9 50	4 00	57s 0d	0 00	7 50
February,	39s 0d	9 50	4 75	57s 0d	0 00	6 75
March,	40s 0d	0 00	5 25	00s 0d	0 00	11 00
April,	40s 0d	0 00	5 25	00s 0d	0 00	8 00
May,	45s 0d	0 00	7 50	00s 0d	0 00	11 00
June,	36s 0d	0 00	4 75	00s 0d	0 00	7 75
July,	35s 0d	9 00	4 00	00s 0d	13 00	8 50
August,	30s 0d	7 00	2 00	50s 0d	13 00	8 00

Exports of Specie for three years, from 1st September to 31st August.

1847–8,	-	$1,845,808	1845–6	-	$1,872,071
1846–7,	-	6,680,050	1844–5	-	2,249,138

Monthly Arrivals of Ships, Barks, Brigs, Schooners and Steamboats, for two years, from 1st September to 31st August.

MONTHS.	1847–48.							1846–47.						
	Ships.	Barks.	Brigs.	Schrs.	St. Ships.	Total,	St. Boats.	Ships.	Barks.	Brigs.	Schrs.	St. Ships.	Total,	St. Boats.
September,	17	13	15	41	6	92	184	37	12	19	42	7	117	141
October,	43	27	18	44	12	144	288	78	30	31	80	7	226	177
November,	146	45	31	62	15	199	266	67	35	63	63	9	237	281
December,	99	61	66	72	14	312	311	72	45	62	43	8	230	337
January,	102	82	74	97	18	373	349	78	64	91	99	6	338	346
February,	97	60	59	74	10	306	316	42	34	63	85	5	229	298
March,	97	50	47	82	17	293	327	83	53	72	105	1	314	317
April,	72	42	40	68	11	233	250	86	41	45	86	6	264	293
May,	90	42	35	96	22	285	229	77	51	87	166	11	392	284
June,	88	39	33	49	20	229	171	51	38	54	101	19	263	251
July,	68	34	24	59	26	211	152	53	30	52	67	16	218	174
August,	36	14	20	51	29	150	134	45	18	24	52	14	153	125

DISCOVERIES AND IMPROVEMENTS.

INDURATING BUILDING MATERIALS.

Among the extraordinary discoveries of the present day, by which materials of the most humble pretensions in works of art are rendered of the utmost utility—the most refractory substances made to bend to the power of scientific research, and many productions, which have for ages been thrown away as useless, brought into most extensive usefulness—we know of none by which a more extraordinary,

not to say magical metamorphosis is effected, than the operation patented by Mr. William Hutchinson, by which plaster of Paris, Bath, Caen, and other soft stone, chalk, wood, paste-board, and, in fact, any other material, is rendered hard as metal, receiving the most brilliant polish, and made absolutely imperishable from atmospheric action, vermin, &c. The purposes to which this patent can be applied are innumerable. The first idea of the patentee was the induration of the softer and more common, and almost useless stones for the purpose of paving; but so ample was his success, that he soon took a loftier view, and has rendered the operation not only applicable to all common purposes for which stones and slates are used in building—such as paving, both internal and external, window sills, fittings of daries, &c.—but now applies the operation to all the higher works of art. Plaster of Paris casts, of the most elaborate designs, in busts, relievos, architectural ornaments, fonts, and ornamental flooring for churches, trellis work for balconies, ornamental ink stands, &c., are rendered imperishable by the operation of the elements, and hard and tough as metal. Sculptors who may so choose may work in Bath or Caen stone, or even chalk, and the production will be rendered superior to marble, and in all these operations the finest edges of the cuttings are preserved, and not a chisel mark is lost.

In inspecting specimens of Mr. H.'s work, we were shown a slab, of soft sand stone, from Tonbridge Wells—so soft, that it might be rubbed into powder by the hand—rendered hard as granite, and rung like a bell; numerous plaster of Paris ornaments and busts, metamorphosed into bronze, granite, and parti-colored marbles—drain, water and gas pipes, made from Bath stone, chalk, or paper, hard as granite, and polished internally like marble; in fact, the results of the operations are most extraordinary. The water pipes, and prepared sheets for roofing, will be found most economical, both in first cost and in wear and tear; in fact, they can be rendered at a cost which comes far below any other description of material which has yet been introduced for these purposes; the sheets would also be highly applicable for railways, and many other public engineering uses.—[*London Mining Journal.*

ARTIFICIAL MINERALS AND PRECIOUS STONES.

A PROCESS has been explained to the Paris Academy of Sciences, and a patent obtained for it, whereby *artificial stone* of every quality may be produced, from artificial granite to statuary marble.

This invention is, it is said, from its cheapness, a great advantage for all the purposes of architectural decoration, and from its plastic nature before it becomes hard, of great service to sculptors in taking casts of statues, busts, &c., and even of figures of the size of life. The cost in all cases, where carving is required in stone, in which this composition is substituted, is less by nine-tenths. The invention is founded on the chemical analysis of the natural varieties of stone, and the

manufacture is capable of such modifications as are requisite to produce all the varieties—"stones manufactured to order."

The artificial stone produced is less absorbent than natural stone, and is superior in compactness of texture, and will resist frost, damp, and the chemical acids. It is made of flints, and silecious grit, sand, &c., rendered fluid by heat, and poured into moulds as required till cool and hardened. Its strength and solidity enable it to resist more blows than real stone.

Specimens of the invention have been forwarded to London, and their appearance is pronounced exceedingly curious. They consist of many varieties, some being plain pieces of coping stones for variegated pavements for halls and rooms, stone ornaments, such as mouldings for friezes, finials, and some more elaborate, having flowers and devices apparently cut with a chisel.

PATENT AIR SEAT SADDLE.

At the recent exhibition of the Agricultural Society of York, (England,) Mr. Taylor, of Banbury, Oxfordshire, exhibited beautiful specimens of improved harness, among which was a patent inflated air-saddle, for riding, with a moveable panel, invented, improved, and manufactured by the exhibitor. The patent air-saddle is an excellent article for ladies and gentlemen's riding; and to the invalid it will be invaluable, as the elasticity prevents the shaking which is frequently occasioned by the rough action of the horse, and is by experienced riders allowed to be the easiest ever invented, both to horse and rider; and which does not, as is suggested by many persons act as a spring saddle, or tend to shift the rider from his seat. A hard or soft seat may be used as required—*Farmer and Mechanic.*

PATENT SAW MILL.

Letters patent have been granted for a saw mill possessing great perfection of parts and combinations and great versatility of action. It is adapted to ordinary rectilinear sawing, to the sawing of curves, regular or irregular, and to the sawing of warped surfaces, such as are used in ship building, and elsewhere. It will be readily perceived that machinery which is principally self-acting and capable of such a variety of duties, cannot be intelligibly described in this paper.—*Patent Office Report.*

ACCESSIONS TO OUR EXCHANGE LIST.

Daily and Weekly Fountain and Commercial Standard.—This is the title of a paper recently established in this city. In referring to the prospectus we observe that it is "devoted to temperance, morals, literature, commerce, agriculture, manufactures, general news, mechanic arts, &c., neutral in politics and religion." The

editors say "we shall sustain a high standard of morals, carefully excluding from our columns every thing calculated to pander to a vitiated taste, or an immoral tendency—to this rule we shall scrupulously adhere."

These are objects that challenge the patronage of every individual in the community, and it is highly gratifying that gentlemen should be found among us possessing a sufficient degree of moral courage to "give up a prosperous business" and devote their time and talents to such lofty purposes. Such a paper as the editors propose to publish is greatly needed in the west. We want a "family paper," one that may be read with safety and without a blush by every member of the household—one that will not misstate or give false coloring to facts for party purposes—one that does not publish scandal that may not be repeated without violating the principles of propriety. In fine we want a paper whose object shall be to elevate the moral tone of society, and refine the taste of the age. Thus far the editors have given earnest that they will do justice to the great work which they have taken in hand, and we sincerely wish that their success may be commensurate with the importance of the principles which they advocate and the objects they purpose to achieve.

The Liberia Advocate.—This is the title of a monthly sheet published in this city by the Rev. Robert S. Finley. Terms, fifty cents per year, if paid in advance—otherwise one dollar. This paper is devoted to the cause of colonizing in Africa the free blacks of the United States. A cause highly worthy of the patronage of every American citizen, and one which we are happy to perceive is daily gaining strength. No scheme affecting the condition of an entire race of human beings has ever been devised by man that involves so many interesting subjects for the contemplation of the philosophic mind, as that which proposes to return to the land of their ancestors, the descendants of the African race who have been born in this country. And we are fully persuaded that but for the unfortunate fanaticism of the Abolitionists, the Colonization Society would have carried this great work to a point that would ere this have challenged the admiration of the world. We are aware that the opinion is generally entertained that the Society can never control means sufficient to relieve the country from any considerable number of these people. But when we consider the immense resources of this country, and that ours is a government of the people who have the power of giving direction to its policy, we may fairly conclude that if the friends of colonization will persevere in the cause, that either private or public means will be found in time sufficient for the end proposed. We recommend those who feel an interest in the cause of colonization to subscribe for the Advocate, it contains much interesting matter upon this and other subjects, and withal costs so little that every one can afford to take it without inconvenience. We sympathize most sincerely with the editor in his philanthropic undertaking, and bid him a hearty 'God speed' in his labors.

JOHN D. M'MURRAY. JAMES M. DORMAN.

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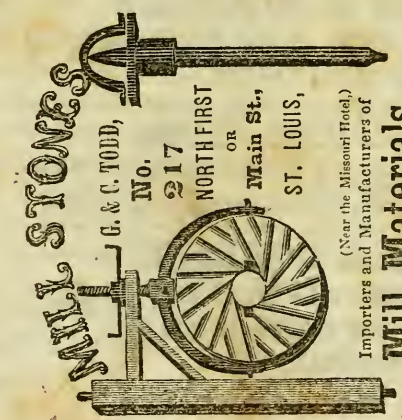

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4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
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THE

WESTERN JOURNAL.

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ART. I.—THE CLOSE OF THE VOLUME.

In closing the first volume of the Western Journal, it is natural that we should pause to contemplate the labors of the year, now drawing to a conclusion. It is the season of retrospection and of reckoning to all, and there is no one who may not profit by a strict examination into his moral as well as business transactions. The harvest is gathered, and the husbandman may now estimate the result of his toil; and if it has fallen short of his expectations let him not rashly impute his disappointment to the seasons. The seasons to him may have been unpropitious indeed, but perhaps, his exhausted soil was not manured—it was not sufficiently pulverized—he permitted the auspicious seed time to pass unimproved, or the worthless weeds sprang up with the corn and robbed it of a portion of its food; or, finally, he relied more upon natural than artificial agents, and made an unskilful application of his labor. If these, or any of these causes, have contributed to diminish his wonted harvest, it would be impious to murmur, or impute his failure to the seasons. Let him place his disappointment to the proper account, and resolve to discharge his duty with more skill and diligence in the time to come.

If his harvest has been abundant, then let him reflect that although his own skill and industry may have contributed to this happy result, yet he was but an agent in educing the appliances of subsistence and of comfort from the elements provided by a benevolent Creator. Such reflections are calculated to excite emotions of gratitude, which, mingling with a consciousness of having discharged his duty, his heart, like his granaries, will be filled to overflowing. Here, then, is a moral harvest, and who fails in this, toils in vain; for, if gratitude be not commensurate with the bounty received, fullness may prove to be a snare, and the source of evil rather than of good.

Has the merchant been unsuccessful? Then let his disappointment incite him to study the laws that govern the exchange of commodities between different countries; for it is altogether likely that he has been mistaken in his estimates in regard to the extent of the demand in other countries for the products of this; or it may be, that the imports, governed and controlled by conditions which he did not comprehend, or by circumstances beyond his conceptions, were suddenly and unexpectedly augmented, reducing the value of his stock on hand to less, perhaps, than it cost him. Or, perhaps, an overweening desire to grow rich suddenly, has led him into speculation; or vanity may have seduced him into habits of ostentation and extravagance. If, owing to any of these causes, his profits have been small, or, indeed, his capital or credit impaired, let him not waste time in unprofitable vexation and regret, for the facts which he has learned, if wisely considered, may, in the end, be of more value than would have been the pecuniary profits, had his calculations been realized.

Is the condition of the artizan and operative no better at the end than at the beginning of the year?—is there no increase in their appliances of comfort—no moral or mental improvement? If not, then they have lived and labored to little purpose. They have either made an unwise use of their time and means, or there must be something wrong in the general economy of the country; for in a region so productive as the Valley of the Mississippi, intelligence and industry, directed to proper objects, are sufficient to advance not only the pecuniary condition of individuals, but to afford ample time also, for mental improvement and the exercise of social duties. If these objects have not been attained, then such as have failed to realize them are invited to investigate the cause; for it should be continually borne in mind, that in this age of progress, those who do not advance must be left behind, and lose their relative position in the march of civilization.

But leaving these, and all others to such reflections as the season naturally suggests, and hoping that each may find pleasure and profit in reviewing the past, we proceed to the retrospection of our own labors as journalists. But we must request our readers not to suppose that we design to review our own work for the purpose of pointing out its merits or defects; this is a task that we leave to those more competent than ourselves. We simply aim to sum up, and collect into one groupe the principal topics, for the purpose of refreshing the mind of the reader, and more especially to enable our patrons the better to judge at the close of the volume, whether we have done them justice in the premises.

We entered upon the publication of the Western Journal suddenly

and without any preparation whatever for supplying its pages with useful matter; we circulated no prospectus, we solicited no subscriptions nor patronage in advance of the publication; for we were unwilling to receive money or take the obligation of individuals to support us before giving them an opportunity of examining the work, and of judging for themselves. We claimed the exclusive patronage of no party in politics, of no sect in religion, nor of any order or association of individuals; for, desiring to promote the prosperity and happiness of all, we could not come under special obligations to a part, without embarrassing our inquiries in the search of truth.

The judgments and conclusions of men—often formed upon an imperfect knowledge of facts—are frequently adopted by a portion of mankind as undeniable truths; these are esteemed "fixed facts," and it is deemed treason in politics, heresy in religion, and unpardonable opposition to orders and associations to doubt or call them in question. Hence we were not willing that these pre-judgments or prejudices should stand in the way, or obstruct our path in the search of truth, or in the examination of principles deemed essential to the improvement of the social condition. We resolved therefore to explore the regions beyond these barriers—to examine the economy of nature, and the laws whereby she rules the individual and social condition of man. Acting upon these considerations, and confiding in the desire for truth which we hold to be inherent in man's nature, we fearlessly embarked on the publication of the WESTERN JOURNAL, determined to rely on its merits alone for success.

It is our desire to make every pursuit which is necessary to procure subsistence and physical comfort, a source of moral pleasure also. To this end we invited the attention of the agriculturist to the "Economy and Habits of Plants," and endeavored to illustrate the nature of the mental and moral pleasure, as well as the profit resulting from the study of this subject.

By considering the "Moral Uses of Plants," we aimed to point out those properties which are generally regarded as accidental, and to show that although considered of little value, yet they were wisely designed by a benevolent Creator to minister to our mental and moral natures, by exciting emotions of beauty, of love, and of gratitude. And furthermore, we desired to inculcate the pleasing truth that God has clothed all his works in beauty, and endowed man with faculties capable not only of perceiving its existence, but of enjoying the most refined and exalted pleasure from its influence.

In our articles on Political and Moral Economy, we have shown that a state of civilization can only be sustained by labor and intelli-

gence combined; that a certain amount of exercise being necessary to the enjoyment of health, the Creator designed that this exercise should be applied to useful purposes, and that when so applied, it should be sufficient to produce all things necessary to supply our physical wants, and leave sufficient time for mental and moral improvement, social pleasure, and relaxation. But to insure this result, we have shown that it is necessary that every individual should be usefully employed; and that their labor should be wisely distributed. Hence we considered labor as a moral institution, ordained by the Creator; and that the injunction which requires man to eat bread in the sweat of his face, was designed to act on the consciences of all mankind, and to compel each individual to bear his just proportion of the burthen. Our object in taking this view of the subject was to show that there were other and higher rewards attendant on labor than that of simply sustaining the physical nature; and also to point out some of the many evils which flow from the opinion that labor was imposed on man as a curse, and that it is degrading to those who submit to it.

We examined "The Natural Laws of Commerce" for the purpose of showing how much those laws are violated when one country possessing all the materials and elements required for manufacturing every fabric of convenience or comfort, transports its raw material to another, distant perhaps many thousand miles, to be manufactured and again to be returned for consumption. Under this head we also shadowed forth a commercial system conforming to the physical geography, climate, and natural resources of the Valley of the Mississippi.

We have also considered the nature of some of the more important "Artificial Agents of Exchange," and examined the nature of money and credit with a hope of enlightening the general mind upon these fruitful sources of political empiricism. In these articles we have explained the disadvantages under which the agricultural producers labor by reason of their remoteness from the manufacturer, the influence which the high prices of land and provisions, the abundance of capital, as also, the political and social institutions of Great Britain exert over the value and profits of American labor, through the medium of our commerce with that country. And, finally, we desired to expose the folly of looking to the acquisition of money as the principal end to be attained by labor and enterprise.

At the expense of much labor we have examined the extent of the product and demand of many of our leading staples, but more especially Hemp and Wheat, for the purpose of enabling the producers to form a reasonable opinion in regard to the policy of increasing the growth of these articles.

With a hope of removing the prejudice which exists in the minds of a portion of the American people against slavery, we discussed that subject with reference to the laws of natural and moral economy; and endeavored to show that the present condition of the negro race in this country is a natural consequence of disobedience to those laws, and that for this cause they have been driven to our continent. We also showed that their condition is not yet sufficiently improved to fit them for a state of freedom; and we pointed to their peculiar adaptation by nature to the tropical climate of America, to prove that they were destined in time to find a home in that region.

We have labored to impress upon the minds of our readers, especially those of Missouri, the importance of establishing a system of public schools that will be sufficient, at least, to instruct every individual in the rudiments of an English education.

And, finally, we have exercised our best judgment in making copious selections of such statistical matter as we deemed most useful to our patrons, and have transferred to our pages many valuable articles from other periodicals. In all cases we have made our selections with reference to what we esteemed the general interest of the country.

Desiring to give a valuable consideration for the money which we receive from our patrons, we have aimed to make the work useful, rather than amusing; not that we wholly condemn works designed for amusement, but it requires more genius than we pretend to possess to combine amusement with profit and instruction; and without these qualities, such works are calculated not only to vitiate the taste, but to destroy the moral tone and mental vigor of those who indulge in them, and also, to unfit them for the useful purposes of society.

Some of our friends have suggested that we are too didactic: that occasional articles, written in a more lively vein, would popularize the work, and make it more attractive without impairing its usefulness. This may be true to some extent; but we write and publish for the use of that portion of the community who have entered upon the serious duties of life, and whose condition and relations require sober reflection. The age in which we live is peculiar in almost every feature; important changes are continually taking place in every thing that concerns the social condition of man. Revolutions, discoveries, and progress, such as would in other ages have distinguished a century, are now crowded into a single year; and it is not in the nature of things that man should remain an indifferent spectator of so many interesting developments, especially when they are so intimately connected with his individual prosperity; for it behooves every individual to inquire how far these new developments—especially in physical

science—are calculated to affect his own condition. We conclude, therefore, that while so many interesting changes are taking place, it is more natural that men should seek for facts, and examine principles than to indulge in amusements; and although there may be very many who still remain indifferent in regard to the great events of the age, yet the time is at hand when the positions which they now occupy must lose their present advantages, and unless they comprehend the current of events, and conform to its overwhelming force, they must lose their relative position in the new state of things. Hence, we conclude, that to much the larger portion of mankind, this is an age of reflection rather than amusement, and that important facts connected with passing events, will be more acceptable than witty anecdotes; and that the illustration of principles involved in the economy of nature, will be not less interesting than the most ingenious and highly wrought works of fiction. It is possible, however, that in this we may be mistaken; and, indeed, when we survey the great number of periodicals devoted to light literature, which, like the frogs of Egypt, cover the land, and come into every house, and into the bed chamber, and upon the bed, we feel half inclined to doubt our own judgment, and fear that in our zeal we have wholly misconceived the taste of the community; but be this as it may, we have resolved to persevere in the course which we marked out at the commencement of the present volume, and constantly aim so to write, that when dying, there shall be "no line which we could wish to blot."

But enough in regard to ourselves. We owe a debt of gratitude to our contributors; which, although we may never be able to discharge, we shall, nevertheless, continue to bear in mind their timely and generous assistance; and a recollection of their disinterested kindness shall be cherished as things most dear to memory, and the last to be forgotten; for to them our subscribers are indebted for much that is interesting—much that is useful—and *we* for much of that approbation which the Journal has received from a liberal public. To point to any one of these contributions as being more valuable than others, would be invidious—our readers will judge for themselves. Embracing the subject of Geology, the Moral Obligation of Contracts, the Commerce and Navigation of the Mississippi River and its Tributaries, the Morals of Commerce, the Rise, Progress, and Influence of the Fine Arts, Modern Literature, Mental Culture, Ship Building on the Western Waters, the Early History of the Territory West of the Mississippi, Eastern Commerce, the Discovery, the first Settlement, and the first Laws of the Mississippi Valley, Description of the Mines and Minerals of Missouri; valuable articles on Agriculture, the useful Arts and

Education; History, Biography, &c.—these papers, of themselves, afford an amount of varied, interesting and useful matter, which we believe will compare favorably with that contained in any other volume of the same size.

There is a peculiar merit in writing for a new periodical which should not be passed over unobserved. When a work has become fully established in the favorable estimation of the world, and has obtained popularity and an extensive circulation, there is then no lack of contributions; for many esteem it as a decided favor to be admitted into its pages—it gives them a claim to respectability. While others, desiring to extend their usefulness, very naturally and properly send their productions to the journals having the most extensive circulation; in this they are doing but justice to themselves and the public, and no one has a right to complain. But such as come forward with the disinterested and benevolent design of sustaining a work just struggling into existence, and labor alone for the sake of a *good cause*, are entitled to more than ordinary commendation. It is true that the profit accruing to themselves or to the community may not be immediate; yet, like bread cast upon the waters, the fruit of their labors shall be gathered after many days. For, if by the countenance and assistance of these our worthy co-adjutors, we shall succeed in establishing the WESTERN JOURNAL as an efficient agent in developing the physical resources of the country—in correcting the prejudices of the age—in reconciling man to his condition as a laborer in obedience to the laws of his physical and moral nature—in extending his sympathies, and finally, in elevating the moral tone of a people destined, as we believe, to exert a large influence over the whole earth—then, they and their offspring will reap a reward commensurate with their labors of benevolence. But should we fail in the attainment of any, or even of all these great objects, yet, to them will remain the pleasing reflection that they have discharged their duty as philanthropists in a good cause.

ART. II.—COMMERCE OF THE EAST—NO. I.

ITS PAST HISTORY.

BY J. LOUGHBOROUGH, ESQ.

Its great value in all ages—Reason of the first historical notice of it—Route up the Red Sea—Up the Euphrates and across the Desert—Rise of Petra—its Grandeur—Mistake of Robertson—Rise of Tyre—its Splendor and Decline—Conquest of Idumea by David—Ophir—First importations into Greece from Phœnecia—Darius Hystaspes—Journey of Scylax—New Route to India by the Caspian Sea—Expedition of Alexander—Seleucus—Founding of Alexandria—Rise and Decline of Palmyra and Baalbec—Discovery of the Monsoons—Route to India from Alexandria—Roman accounts of India—Saracen Conquest of Egypt—Rise of Constantinople—New Route to India—Rise of Venice and Genoa—Bruges and Antwerp—Extraordinary Difficulties of the Trade.

From the earliest period the people of the western nations have struggled to acquire the rich commerce of eastern Asia. Sacred and profane history teem with pictures of the toils, the dangers, the difficulties, the calamities, and the successes of national and individual adventure in pursuit of the wealth and the splendor with which it rewarded all those who possessed genius, skill and enterprise. In their pages are portrayed merchants laden with gold and silver, traversing trackless and burning deserts on camels and dromedaries, exposed to the scorching rays of an almost vertical sun, and the fierce sirocco, saturated with pestilential poison; or committing themselves to the bosom of seas over which the genius of the tempest is ever hovering to strike, when least anticipated, the adventurous barque—to reap in exchange the jewels and precious stones which may elevate them to the level of princes. From the spoils of this commerce, kings have been elevated to grandeur and to empire, nations have been advanced to the first rank in art and in science, in wealth and in national power; by it, armies have been clothed and fed, navies created and conquests achieved.

Why this should have been so is not difficult of solution. The world contains but one Asia and one East Indies; no other portions of it will spontaneously produce spices, aromatics and teas. Other people have not the manual skill for their production which ages of practice alone can give; nor are jewels, precious stones and porcelains embosomed in the soil of other regions; and so long as mankind continue to estimate what is rare above what is useful—what is brilliant above what is needful—what is difficult above that which is easy of acquisition; or so long as the surplus profits of the products of other countries can be profitably exchanged for the riches of the East; the world will be compelled by the inflexible law of trade to turn its eyes to Asia for the realization of the brilliant dreams awakened by oriental imagination. Thirty centuries have already elapsed since the stream of eastern treasure commenced pouring into Europe through Phœnicia, and still the fountain increases in volume, and the nations flock to receive its freight. Will thirty centuries more exhaust it? He must indeed be blind to the order of nature and Providence, and the general course of events, who perceives not that every step in human progress opens up a clearer view of the increase, the permanency and the benefits of this commerce.

The light of history does not ascend to the period of the origin of this trade. If the discoveries of Young, Champollion and Wilkins may be relied upon, (and we see no reason to doubt,) ages previous to all authentic records, the Egyptians had arrived at an extraordinary elevation in science, in architecture, in mechanical philosophy, and in all those arts on which national power and splendor rest; and there can be no hesitation in believing that many of the elements of their greatness were derived to them through commerce with the east. The first allusion to this traffic in Scripture is the passage wherein it is mentioned that a company of Ishmaelites were carrying spicery into Egypt, which must have been the produce of India, and there the fact is cited as a common and familiar thing. (*a*) In the book of Exodus (*b*) an enumeration is made of a variety of spices and perfumes. Cinnamon and cassia which, no doubt, were grown in India, or on the islands of the Indian Archipelago, are specifically mentioned. Most of the ancients believed that Indian spices were employed by the Egyptians in the extraordinary process of embalming the dead; and Diodorus Siculus asserts positively that cinnamon was used by them for that purpose. (*c*) The earliest intelligible account of the routes by which this trade was carried on, is that which assures us that it originated with the Arabs, who brought spices and aromatics, the produce of India, from the modern province of Scinde and the Malabar coast to Hadramaut, in the southwestern portion of Arabia, or to Gerra, on the Persian Gulf, from whence they were conveyed by camel caravans to Petra, the ancient capital of Idumea, the ruins of which yet attract the admiration, and excite the compassion of mankind. (*d*) This is the first of those magnificent cities of western Asia, to which this trade gave birth. There is nothing which so manifestly exemplifies the uncertainty of human calculations, and the mutability of human destinies, as the mournful memorials in the midst of desolation, presented to us, of the ruin of splendid cities brought into existence by the commerce of the east, invested by it with the insignia of power and the trophies of victory, and finally left by it, solitary heaps of ruins where the sound of human footsteps is never heard, and the cry of the bittern awakens a plaintive echo. The shattered columns, the broken arches, the dilapidated temples, the mounds of buried fragments, all teach a lesson which might shame the ambition of man, whilst they exhibit to him the all-grasping and inexorable march of destiny.

The next notice of this trade is that which speaks of it as penetrating the Persian Gulf to its head, thence up the Euphrates as high as Circisium or Thapsacus, and thence across the great Syrian Desert, in caravans, near three hundred miles, to Phœnicia. (*e*)

Robertson is undoubtedly mistaken in asserting that the ships of the Phœnicians sailed to India. (*f*) The harbors on the Red Sea were in possession of the Idumeans, and so continued until the conquest of that nation by David. In the

(*a*) Gen. ch. 37, v. 25. (*b*) Ch. 30. (*c*) B. 1. 91. (*d*) Labordi's Journey. (*e*) Jewish tradition. (*f*) History of India.

enumeration of the nations that traded with Tyre, in the book of Ezekiel, (*g*) no mention is made of any of Indian origin; but the several tribes of Arabians through whom they were supplied with Indian products, are specified. It is barely possible that the Tyrians traversed the Red Sea after the death of Solomon, but there is no unequivocal testimony of this fact. But although Tyre "the daughter of Zidon" and "the Queen of the Sea," had no direct commercial intercourse with India, it is certainly true that she owed all her power and splendor to the wealth acquired from thence through the channels now indicated. As she was the ultimate western emporium, she became the richest and the proudest city in the world. Her "traffickers" became "the honorables of the earth," the luxuries of the world were at their disposal, and they rivalled kings and princes in the splendor of their palaces and the vastness of their expenditures. Nebuchadnezzar, king of Babylon, conquered Tyre and destroyed the city, but no rival to her trade came forward, and on a peninsula "in the midst of the sea" the renovated city arose, and seized the trident which she swayed undisturbed until the invasion of the Macedonians.

Prosperity begot pride, and pride a haughty disregard of the Omnipotent, and again the Prophet announced that "the Lord had given commandment against the merchant city to destroy the strongholds thereof."(*h*) The Grecian conqueror passed the granaries, invested the city and after a seige of seven months, entered it in triumph—reduced the inhabitants to slavery, and crucified along the shore two thousand of its heroic defenders. The sceptre of its power was now broken, and after falling under the authority of several masters, it became the prey of Antiochus (B. C 218,) and again subject to the Seleucidæ—afterwards successively the property of a private citizen—an inferior Roman province—the See of a christian bishop—the prey of the Crusader, and finally the spoil of the Saracen, who razed it to its foundation and left it "a place for fishermen to dry their nets." (*i*)

The conquest of Idumea by David, placed the Jews in possession of the harbor of Ezion-Gebir on the Red Sea, from whence a commerce was opened in ships to Ophir, bringing as its fruits "gold and silver, ivory, apes and peacocks."(*j*) There is some diversity of opinion respecting the position of Ophir. It is most probable that it was an Arabian emporium of the trade of Africa and India, the gold being procured from Africa by the Arabian merchants, and the ivory, apes and peacocks from India. The Hebrew words denoting these articles are derived from the Sanscrit. We may form some idea of the value of the Indian trade to the Jews from the assurance given us (*k*) that King Solomon realized as the proceeds of a single voyage, the sum of $15,550,000. We reduce this from the amount in Roman talents. This sum we are compelled to believe was the gross amount received, not the net profit.

The products of India were imported into Greece by the Phœnicians at a very early period, as is evidenced by the fact that many of the Greek names for articles

(*g*) Ch. 27, v. 19-22. (*h*) Isaiah. (*i*) Ezekiel. (*j*) Ezekiel. (*k*) 2d Chron., ch. 8.

obtained from this trade are derived from the Sanscrit. Such are those for pepper, emerald, fine linen, the cotton plant, cinnamon, tin, &c. It has been asserted that the Greeks first obtained tin from the Scilly Isles through the Phœnicians, but it is much more probable that they originally obtained it from India, and subsequently, as Strabo relates, from the Cassiterides (Scilly Isles.)

The western nations of Asia had no other than a commercial connection with India until the reign of Darius Hystaspes (B. C. 521.) The accounts given by Diodorus Siculus of the invasion of India by Sesostris and Semiramis, cannot be relied upon as historically correct. The Cyropedia of Xenophon approaches much nearer to romance than history, and the mention of an alliance between Cyrus and a King of India, may be more properly treated as fiction than fact.

During the reign of Darius Hystaspes, according to Herodotus, (*l*) Scylax of Caryanda was dispatched by this Prince to explore the coasts of India. He set out for the city of Caspatyrus and the Pactyacan country in the northern section of India. From thence he sailed down the river Indus, through its marvellous scenery and its gorgeous drapery of vegetation, until issuing into the Indian Ocean, he encountered with heroic fortitude the storms and currents of that most capricious of all seas, and finally penetrated to the head of the Arabian Gulf, after an absence of thirty months. Upon the discoveries of this great expedition, a new route was opened to the commerce of the East. It extended from the northern confine of Persia over the Caspian Sea, which is set like a gem in the mountains, up the river Oxus to the mountains which separate it from the waters of the Indus; across those mountains with the assistance of the Bactrian camels; and thence down the Indus to the territories in the vicinity of its mouth—at that period the chief seat of the India trade, and the extreme limit of the ancients in their eastern commerce. This route passed over a distance of 3,000 miles; 600 upon the Caspian Sea, 900 up the river Oxus, 200 or 300 over the mountain barrier and about 1200 on the river Indus. Herodotus also states that Darius subdued the Indians and reduced them to a satrapy of the Persian throne.

The knowledge of the Greeks respecting India anterior to the expedition of Alexander, was derived from the Persians. The name India or Hindoo's does not occur in the ancient Sanscrit, but the territory east of the Indus was recognized by those names in western nations from the earliest period. The first Greek author who mentions India is Eschylus (B. C. 480); but no one gives any account of the people previous to Herodotus. By him three distinct tribes are enumerated.

The expedition of Alexander gave to the Greeks the first correct idea of western India. He penetrated as far east as the Hyphasis, then pursued the course of the Indus to the Ocean, and despatched Nearchus to follow the lead of Scylax along the coast, and up the Persian Gulf to the mouth of the Euphrates. (*m*) Seleucus, one of Alexander's successors, advanced to the Ganges, and from that era regular communication commenced.

(*l*) B. 4. 44. (*m*) Plutarch.

Subsequent to the founding of the city of Alexandria (B. C. 300) the trade to India was almost exclusively monopolized by the merchants of that flourishing city; but it is not correct as has been hastily stated that this trade suddenly shifted its old channels. On the contrary, it continued to be mainly carried on from the Euphrates across the desert to Tyre, until the beginning of the first century before Christ. It was during this period that Palmyra, (Tadmor of the scriptrues,) the gorgeous city of the desert, amid the magnificent ruins of which Volney mused upon the destinies of empires, and Lamartine dreamed of the glories of the past, first rose into power and importance. Founded probably by Solomon, (*n*) it sunk into insignificance during the troubles which succeeded his demise, and again awakened into life and activity during the first two centuries after the founding of Alexandria. These conclusions are evidenced by the facts, that it was situated directly on the caravan line from the Euphrates to Tyre, that no architectural work of a period anterior to the Ionic has been recognized there, and that much the larger portion of its remains belong to the Corinthian order. Its government was originally republican. [*o*] From a watering place for caravans it rapidly arose to be the capital of a great empire, the seat of the arts and sciences, and the wielder of the balance of power between Rome and her eastern antagonists. Roman pride could not brook this haughty attitude. The Emperor Aurelian carried the forces of the Empire against the city of commerce, and after obstinate resistance, the beautiful and accomplished Zenobia, the last "Queen of the Desert," the descendant of Cleopatra, and the patroness of the arts, was compelled to submit to the mercy of the conqueror, and march in golden chains as a degraded captive to grace his triumphal entry into the eternal city. [*p*]

It was during this period too that Baalbec, (the Heliopolis of Gibbon,) or the "City of the Sun," was erected upon the caravan line between Palmyra and Tyre. Of this rich gem of the desert, historical tradition has left no memorial. The burning beams of the meridian sun yet flash upon the graceful fane dedicated to his service; but the names and the achievements of the people by whose piety and genius it was erected, are obliterated from the page of history. Of whatsoever lineage they were, they have left enduring monuments of cultivation, taste, and civilization, which rival the grandest productions of genius which antiquity has left for the admiration of after ages.

The discovery of the monsoons by Hypalus, at the commencement of the century preceding the Christian era, resulted in an entire change of the course of this trade. Pliny has given an account of it as it existed in his time. The merchants entered the canal of Alexandria and pursued it into the great river Nile, the mother of fertility; thence up that turbid stream to Coptos; thence across the great desert two hundred and fifty-eight miles, upon camels, with wells for halting places, to Berenice, on the Red Sea; thence, in thirty days' sail, to Ocelis, in Arabia; and thence, with the monsoon, forty days to Muziris, (Mongalore,)

(*n*) Jewish Tradition. [*o*] Pliny, the elder. [*p*] Gibbon and Montesquieu.

the first emporium in India. In December and January, their vessels returned with the southeast monsoon, to the Red Sea; and thence with the Auster, (south west wind,) to Berenice—the whole voyage occupying something less than twelve months. Arrian, who had visited India, gives substantially the same account of this trade.

The knowledge of the Romans beyond Cape Comorin, was but meagre. Ptolomy, (a century after Pliny,) derived his information from mercantile intercourse. The Romans never extended their conquests into India, and consequently knew only what they were told by commercial adventurers. But we learn that western commerce excited attention in the east. Augustus received embassies from Pandion and Porus, and Claudius one from Ceylon. (*q*) Near two million dollars were annually invested in eastern trade by the Romans, (*r*) and the usual profit upon this investment was one hundred per cent. In the time of Justinian, a merchant named Cosmos wrote a volume upon this subject, but it adds little or nothing to Arrian's account.

After the Mahommedan conquest of Egypt, [A. C.] the Roman merchants were excluded from the port of Alexandria. This occasioned the opening of a new channel for the India trade. Constantinople became its western emporium. From thence the new route lay through the Black Sea to the river Phasis; up that stream some distance, and by caravan travel, five days, to the river Cyrus; down that stream to the Caspian, and thence upon the ancient Persian route of Darius to India. So vast and productive was the trade, that even upon this long, expensive and hazardous route, its profits raised the city of Constantinople to the highest grade in wealth and splendor; and its power and glory was maintained for several centuries after the Mahommedan conquest of Egypt, and long subsequent to the final dissolution of the Roman Empire. (*s*)

Constantinople continued to be the emporium of the India trade for the European nations, and Alexandria for the Egyptians, until the latter part of the fifteenth century. The Venitians and the Genoese (*t*) established trading houses in Constantinople, and soon the rapid influx of wealth elevated them to power and pre-eminence. This trade fulfilled for them the celebrated boast of Augustus—it found them of brick, it left them of marble. As if they had been possessed of the lamp of Aladdin, poverty gave place to wealth, weakness to power, deformity to beauty, rudeness to refinement, ignorance to skill, cowardice to courage, and meanness to splendor. The wealth and the imagination of the East invested them with power, and threw over them a brilliant drapery of oriental magnificence. Their fleets became the arbiters of the seas, at a time when the other nations of Europe were sunk in comparative barbarism, and some of the humblest of their citizens maintained a state superior to the princes of other countries. From the spoils of eastern commerce, the Venitians accumulated the means of disputing with the Turks the supremacy upon the Mediterranean, and of creating

[*q*] Tacitus. [*r*] Pliny. [*s*] Gibbon and Robertson. [*t*] Sismondi and Daru.

those vast armies which, for successive ages, defended Europe from the aggressions of the Saracens. The Lion of St. Mark became the sentinel of christian nations. (*u*)

From Venice and Genoa the passion for the trade of the east spread over the north of Europe. Bruges and Antwerp became its northern *emporia*, and the wealth and splendor to which they attained, is yet visible in the works of art with which they are adorned. This was the longest, the most laborious and the most perilous route of which history leaves us any account for the prosecution of trade. It is most wonderful that a state of circumstances could ever have arisen wherein a commerce so carried on could bring profit, and even wealth to those engaged in it. From Bruges and Antwerp the merchant toiled upon horses, or ascended the river Rhine to its head in boats, and thence upon horses across the interior of Europe several hundred miles through dense forests, along the beds of rapid torrents, and deep gorges, and over mountainous regions, and finally surmounting the stupendous range of the Julian Alps, descended into the plains of northern Italy, and thence arrived at Venice and Genoa. At these ports the adventurers took ship, and sailing through the islands of the Grecian Archipelago, amid rapid currents, varying winds, capricious storms, and rocks which emulated Scylla and Charybdis, they entered the golden horn of Byzantium. But the journey was scarce yet begun. Up the Bosphorus, through the whirling waters of the Black Sea to the river Phasis; up that stream, and with caravans, over mountains to the river Cyrus; down that stream, over rapids, and falls, and deep ravines, and dangerous rocks, to the Caspian; across its vascillating currents, and amid its sudden hurricanes, to the outlet of the Oxus; thence with the pole, the cordelle, and the paddle, around portages and by cascades, and along magnificent mountain ranges whose peaks pierced the clouds, and whose overhanging cliffs threatened to crush the adventurous barques, to Samarcand; and thence upon Bactrian camels, over arid deserts, interlocking streams, threatening precipices, and lowering mountains, where the tiger and the congar, and other ferocious beasts made their home, and along the great chain of the Himalayas, amid the spurs of which dwelt robber bands of many tongues, who deemed the toiling merchant their lawful prey—an entire distance of upwards of eight thousand miles, to the western provinces of the Chinese Empire. Such was the course of this great trade; but with all its toils and hardships, difficulties and dangers, it made Venice and Genoa, Bruges and Antwerp, the capitals of science and refinement, of luxury and splendor, and the centres of naval and military strength.

[*u*] Russell and Sismondi.

ART. III.—LAW REFORM—NEW YORK.

It is with some degree of reluctance that we publish the following article on the Law Reform in New York; not because it is wanting in merit, or that the subject is without interest; but our embarrassment is owing to the fact that we are not permitted to use the name of the author, connected with the further facts, that we have neither read the New York Code, nor formed any decided opinion upon the subject of a "law reform" in our own State. That much inconvenience is incident to our present system, must be admitted by all; but how far this can be avoided without incurring others equally to be deprecated, is an inquiry that we are not prepared to answer.

The administration of complete justice should be aimed at by every government, but this is an end that can never be attained by human institutions. The great points to be kept in view by the legislature are speed and certainty. That we have fallen far short of attaining these in Missouri, is quite evident; and hence, the conclusion follows, that there yet remains something to be done in this matter by the legislature. Our own engagements, however, will not allow us at present to discuss the subject, but we shall, nevertheless, be pleased to publish the opinions of others who may desire to bring their views before the public.

"An Act *to simplify and abridge the Practice, Pleadings and Proceedings of the Courts of Justice of this State*," passed April 12, 1848. 71st session.

This is the title of an act of the Legislature of New York, which took effect on the first of July last. It forms a full and minute code of procedure, and is designed to abolish the existing forms of actions and pleadings at common law—declaring that the distinction between legal and equitable remedies shall no longer continue, and requiring but one form of action for the enforcement or protection of private rights, and the redress or prevention of private wrongs.

We propose to lay before the readers of the Western Journal the outline of this new code, and we are half inclined to make an apology for the introduction of a subject apparently so dull. Rarely do flowers bloom around the den of the Law, and from its Medusean face, sentiment, literature and fancy affrighted turn away. Stern old Coke—the courtly Blackstone, and Mansfield himself—yea

"How sweet an Ovid was in Murray lost"—

occasionally toyed with literature and dallyed with the Muses, but the moment they approached the temple of the Law, they became profound and pedantic, and ministered its rites as if its jargon were wisdom and its forms common sense. Its

Monkish Latin, Norman French, and solemn prattle were important parts of the great system of chicane and absurdity. The philosophy which could explain and the literature which could adorn were strangely out of place in such a system, and we would venture much if we discussed its hoary mysteries in a lightsome view. Though we breathe, live and move under its influence—though on the ocean and the plain it is around and over us—though to its protection we owe our lives, property and reputation, and though it guides our actions, tongues, and even our thoughts, still, with unhallowed hands we cannot touch it. Cerberus cannot be played with, and we dare not make the experiment. Call it the people's affair, and ten thousand voices are raised to ask what do the people know or care about it. Say that it needs reformation, and a sneer or an insult is the reply. Discuss its principles and operation according to common sense, and straightway goes up the laugh. Attempt to strip it of the frippery with which it has been bedecked, and a plaintive cry of injustice and wrong is heard. Under such circumstances it is a good doctrine to take "what the Gods give us," and how imperfect soever may be the reform, we hail it as foreshadowing the coming of the day when law will be simple, intelligible and precise, and promulgated throughout the length and breadth of the land. Something is gained when the forms which have hitherto hedged it in from the public mind are broken down, and the experiment of a code of procedure based on common sense, will necessarily lead to the great and important work of codefication—a work which although tedious, is by no means uncertain nor impossible.

The reform in New York was the result of a deep seated popular feeling, arising from the delays, difficulties, uncertainties, and enormous expenses attendant on law suits. The committee which proposed the constitution recently adopted by the people of that State, acted on the subject, and the legislature was required to take steps to remedy the evil. A committee of able jurists was appointed by the legislature to take the matter into consideration, and report the necessary changes to be made in the procedure of courts of justice. On the report of that committee the legislature acted, and after much discussion and several amendments, a code of procedure was enacted.

This code is well arranged, and its divisions are accompanied by clear definitions. The act is divided into two parts—the first relating to courts of justice, and their jurisdiction, and the second, to civil actions commenced in the courts of the State. Under proper titles, the various matters of jurisdiction, procedure, &c., which necessarily arise, are classified. The distinctions between actions at law and suits in equity, and the forms of all such actions and suits, heretofore existing, are abolished. A civil action in a court of record is commenced by the service on the defendant, of a summons—the plaintiff being required to insert in the summons a notice, in substance, first: In an action arising on contract, for the recovery of the money only, that he will take judgment for a sum specified therein, if the defendant fail to answer the complaint. Secondly, in other actions, that if

the defendant fail to answer the complaint, the plaintiff will apply to the court at a specified time and place, (after the expiration of the time for answering,) for the relief demanded in the complaint. The mode in which the summons in various cases is to be served, is prescribed, and every precaution is taken to prevent surprise and to bring the defendant into court.

The old forms of pleading being abolished, the act prescribes that the first pleading on the part of the plaintiff, a complaint, shall contain: 1. The title of the cause, specifying the name of the court in which the action is brought—the name of the county in which the plaintiff desires the action to be had, and the names of the parties to the action, plaintiff and defendant.

2. A statement of the facts constituting the cause of action, in *ordinary and concise language, without repetition, and in such a manner as to enable a person of common understanding to know what is intended.*

3. A demand of the relief to which the plaintiff supposes himself entitled. If the recovery of money be demanded, the amount thereof shall be stated.

The plaintiff having thus made his complaint, the only pleading on the part of the defendant is either a demurrer or an answer. The causes for which a demurrer will lie are stated in the code, and are—jurisdiction of the court, of the person of the defendant, or the subject of the action—the want of legal capacity in the plaintiff to sue—the pendency of another action between the same parties for the same cause—a defect of parties, plaintiff or defendant—that several causes of action have been improperly united, or that the complaint does not state facts sufficient to constitute an action. Unless the demurrer shall distinctly specify the grounds of objection to the complaint, it is to be disregarded. After a demurrer the plaintiff may amend of course, and without costs in twenty days. Upon the decision of the demurrer the court may, if justice require it, allow the plaintiff to amend, or the defendant to withdraw his demurrer and to answer.

The answer of the defendant shall contain:

1. In respect to each allegation of the complaint controverted by the defendant a specific denial thereof, or of any knowledge thereof sufficient to form a belief.

2. A statement of any new matter constituting a defence, in ordinary and concise language, without repetition, and in such a manner as to enable a person of common understanding to know what is intended. The defendant may set forth in his answer as many grounds of defence as he may have. They are to be separately stated and may refer to the causes of action which they are intended to answer in any manner by which they may be intelligibly distinguished. Should the answer contain new matter the plaintiff may within twenty days reply to it, and he may allege any new matter not inconsistent with the complaint in avoidance of the answer.

It will be thus seen that the only pleading allowed, (and those in ordinary and concise language, without repetition,) are the complaint, demurrer, answer and reply. It is required that the complaint, answer and reply

be *verified* by the party, his agent or attorney, to the effect that he believes it to be true. The verification may be omitted where the party would be privileged from testifying as a witness to the same matter; and it is provided that no pleading, so verified, shall be used in a criminal prosecution against the party, as proof of a fact admitted or alledged in such pleading.

Among the general rules of pleading, as prescribed by the code, and designed to simplify as well as facilitate the proceedings of the courts of justice, it is declared that neither presumption of law, nor matter of which judicial notice is taken, need be stated in a pleading—that all pleadings shall be literally construed, and that irrelevant or redundant matter shall be stricken out. In an action for libel or slander, the defendant may, in his answer, allege both the truth of the matter charged as defamatory, and any mitigating circumstances legally admissible in evidence, to reduce the amount of damages; and whether he prove the justification or not, he may give in evidence the mitigating circumstances.

The plaintiff may also unite several causes of action in the same action where they all arise out of contract, express or implied—injuries by force to person or property—injuries without force to persons or property—injuries to character—claims to recover real property, with or without damage for the withholding thereof—a similar rule as to claims to recover personal property, or claims against a trustee by virtue of a contract, or by operation of law. The causes of action so united, must all belong to one only of these classes, and must equally affect all the parties to the action, and not require different places of trial.

Mistakes in pleading, and the old doctrine of amendment, the fruitful sources of injustice and delay, have not been passed by in silence, but the code has, on these subjects, prescribed wise and plain rules. No variance between the allegation in a pleading and the proof, shall be deemed material, unless it have *actually misled* the adverse party to his prejudice, in maintaining his action or defence upon the merits. Where the variance is immaterial, the court may direct the fact to be found according to the evidence, or may order an immediate amendment without costs. Any pleading may be amended by the party of course without costs and without prejudice to the proceedings already had, at any time before the period for answering it shall expire. In such cases a copy of the amended pleading is to be served on the adverse party. At any time and on such terms as may be proper, the court may amend any pleading or proceeding—by adding or striking out the name of any party—or a mistake in any other respect, or by inserting other allegations material to the case, or by conforming the pleading or proceeding to the facts proved, whenever the amendment shall not change substantially the cause of action or defence. If a plaintiff be ignorant of the name of a defendant, such defendant may be designated in any pleading or proceeding by any name, and when his true name shall be discovered, the pleading or proceeding may be amended accordingly. In every stage of an action the court is required to disregard any error or defect in the pleadings or proceedings which

shall not affect the substantial rights of the other party; and no judgment shall be reversed or affected by reason of such error or defect.

The code contains numerous and precise details as to arrest and bail—claim and delivery of personal property—injunction by order—powers of court as to receivers, deposit of money, &c.

Issue being made, a jury is empannelled, provided the right to the trial by jury has not been waived by the several parties to the issue of fact—1. By failing to appear—2. By written consent in person or by attorney, and thirdly, by oral consent in open court entered in the minutes. Upon the trial of a question of fact by the court, it is required that its decision shall be given in writing and filed with the clerk within twenty days after the court at which the trial took place; and in giving the decision the facts found shall be first stated, and then the conclusions of law upon them.

All or any of the issues in the action, whether of fact or of law, may be referred, upon the written consent of the parties; and where the parties do not consent, the court may, on the application of either, or of *its own motion*, direct a reference, where the trial of an issue of fact shall require the examination of a long account on either side: in which case the referees may be directed to hear and decide the whole issue, or to report upon a specific question of fact involved therein, or—where the taking of an account shall be necessary for the information of the court—before judgment or for carrying a judgment or order into effect, or where a question of fact, other than upon the pleadings shall arise, upon motion or otherwise, in any stage of the action. The report of the referees shall stand as the decision of the court upon a trial, subject in like manner to be excepted to and reviewed.

Independent of this mode of procedure, parties to a question in difference, which might be the subject of a civil action, may, without action, agree upon a case containing the facts upon which the controversy depends, and present a submission of the same to any court which would have jurisdiction if an action had been brought. But to determine the rights of the parties it must appear by affidavit that the controversy is real and the proceedings in good faith. The court shall render judgment thereon as if an action were depending, and the judgment may be enforced in the same manner as if it had been rendered in an action, and shall, in like manner be subject to appeal.

Many of the old rules of evidence regulating trials, and which seem to have been formed for the purpose of suppressing truth and increasing litigation, have been abolished. The code declares that no person offered as a witness shall be excluded by *reason of his interest in the event of the action.* This rule, however, does not apply to a party to the action, nor to any person for whose immediate benefit it is prosecuted or defended; nor to any assignor of a thing in action, assigned for the purpose of making him a witness.

The action to obtain discovery, under oath, in aid of the prosecution or defence,

of another action is abolished. A party to an action may, however, be examined as a witness at the instance of the adverse party, and for that purpose may be compelled, in the same manner, and subject to the same rules of examination as any other witness, to testify either at the trial or conditionally, or upon commission. For good cause shown, such examination may be allowed before trial. The examination of the party may be rebutted by adverse testimony. A person also, for whose immediate benefit the action is prosecuted or defended, though not a party to the action, may be examined as a witness in the same manner, and subject to the same rules of examination, as if he were named as a party.

In relation to the admission or inspection of writings, a simple rule is prescribed. Either party may exhibit to the other, or to his attorney, at any time before the trial, any paper material to the action, and request an admission, in writing, of its genuineness. If the adverse party do not admit it, and the party exhibiting it be afterwards put to the expense of proving it, and it be finally proved or admitted on the trial, the expenses shall be paid by the party refusing the admission. The court may also, on due notice, order either party to give to the other, within a specified time, an inspection and copy, or permission to take a copy of a paper in his possession or under his control, containing evidence relating to the merits of the action, or the defence therein. If compliance with the order be refused, the court may exclude the paper from being given in evidence, or punish the party refusing, or both.

On the subject of costs, moderate specific allowances prescribed in the code are given according to the character of the proceedings. To the clerk, in a civil action, a fee of two dollars only, is allowed for all his services, except for copies of papers.

Such is a sketch of a portion of this code. It will be readily perceived that we have merely presented an imperfect outline of it. It contains more than four hundred sections, and is full on the matters which relate to jurisdiction, parties, limitation, trial, evidence, judgment, execution, appeal, &c. in civil actions. Throughout the whole of it, simplicity and cheapness seem to be the great ends desired, and if properly carried out by the courts, it must and will produce a radical revolution, at once elevating to the profession, and beneficial to the people. The senseless jargon—tedious and unnecessary forms—uncertainty resulting from the subtle distinctions between modes of remedy—perplexity and conflict of decisions arising on mere matters of form—dubious litigation—confusion between legal and equitable rights—the absurdity of many of the common law rules of evidence, and the onerous taxation produced by law suits, are, in a great measure, removed by this code, and in their place, simple and intelligible rules substituted.

It is well known to many of our readers, that for several years past the General Assembly of Missouri has made many attempts to simplify the proceedings of courts of justice. The press of the State has also discussed the question, and an excellent pamphlet by Judge Wells, published in the summer

of 1847, contains not only many of the reforms and amendments as adopted by the Legislature of New York, but suggests the principles of a code as plain, and if anything more simple, and less expensive—particularly on that branch of the subject relating to the joinder of action. In the "*petition*" of Judge WELLS, similar to the "*complaint*" of the New York system, any cause of action, whether in law or equity, or both, may be embraced; nor did it matter what kind of action, if at law, would under the old practice be required—whether debt, covenant, assumpsit, trespass, &c., and whether relating to real or personal property, or injury to person or property, they can all be joined in one action. It was also required, that in all actions on instruments of writing, the same should be affixed to the petition. The defence termed an "*answer*," was equally simple, and the defendant could, under it, make his defence to the action without the risk of being compelled to suffer judgment when he has a just defence. It also prescribed numerous brief, plain and comprehensive forms of procedure, and is worthy of the attention of our next General Assembly.

[Since writing our remarks at the head of this article, we have read Judge WELLS' pamphlet on "Law Reform in Missouri," and we frankly admit that our first impressions strongly incline us to favor his views in regard to abolishing the present forms of action. They are, and ever have been, great sources of vexation, cost and delay, and it may be well questioned, whether *certainty*, one of the primary objects of these different forms, has ever been promoted by them, at any time since their adoption.

This pamphlet contains a most lucid exposition of the absurdities involved in our system of practice, and we commend it to the serious consideration of the legislature; with the remark, however, that it is possible when the subject is thoroughly examined, objections to the change may be discovered, which do not present themselves with the first impressions.—EDITORS.]

ART. IV.—THE THEORY OF LIFE AND HAPPINESS.

BY JOSEPH ORMROD.

HAVING by the special favor of the proprietors obtained permission to use the pages of the "Journal" as a depository for my lucubrations, although not quite aware of the extent to which I may thus appropriate them, I am disposed, like many others, to take advantage of what may be but a qualified license, I put

therefore a liberal construction upon it and stretch the privilege so as to use it *ad libitum* for my own gratification, and as the freaks of my own fancy may dictate.

Of this fact the readers of the "Journal" have, no doubt, ere now become sufficiently aware, if they have not they soon will, and without being much gratified at the discovery. I can only plead in extenuation of my obtrusiveness into the pages of the aforesaid excellent monthly, and offer as an apology for the much writing which I do now, and which I expect hereafter to perpetrate, that those pages have become a kind of safety-valve through which I can discharge any too active ideas, when so strongly impinging against the *pia mater* as to be apparently perilous for me to retain them.

What I have heretofore 'essayed' for the "Journal" in my literary character being designed *pro bono publico*, for the public benefit, and in especial for the edification of my readers, has, no doubt, been altogether unattractive and regarded as dull and heavy matter void of interest. Now as, according to the fashion of the times and the prevailing sentiment, it would be a grave fault in me to overlook popular considerations, and as I have reason to believe that people now-a-days, do not care for edification, but seek only how to be amused, I have thought it expedient, in order to propitiate my readers, and to redeem my character from the reproach of dullness, (which, indeed, I have a contempt for myself) to lay aside my gravity and attempt something in the sprightly vein.

Being, however, in my literary exercitations, unused to the lighter moods, I am fearful lest the vagaries which I may indulge in should more resemble the gambols of a *bruin* than the movements of any more graceful animal, but since there is a seeming necessity now for me to hazard something in this way, I must go on and make the best figure I can.

I can do nothing, however, without a subject, and a subject may lead me again to moralizing.

While in quest of something suited to an occasion so unwonted, I have been cogitating this hour upon things in general. In the vagrant mood I have thus got into, with my thoughts turned this way and that, I have finally got to brooding over human hopes and human wishes, and since I see not what better I can do, I will even pursue their bent.

I will regard myself as a mere looker-on and fancy myself standing aloof from the universal scramble for power, place, and pelf, which is going on among my congeners in the busy world.

I must retain my sympathies, indeed, for the actors and sufferers in the strife, but otherwise let it be supposed that I have no farther concern in the matter. Without this species of abstraction, or as it were spiritualization, I should scarcely indeed have the power, while contemplating the follies of life, to make out of them any profitable speculation which I could turn over to the readers of the Journal for their especial benefit—they will observe here that I cannot yet forego my regard for them.

As it is, and being by virtue of the aforesaid abstractedness, exempt, it is to be presumed, from the weaknesses of humanity, I have arrived at certain momentous conclusions relating to human interests, which I shall forthwith proceed to lay before them, in the confidence that they will be regarded as irrefragable truths not to be questioned. For since I have thus withdrawn myself from all participation in worldly concerns, my judgment is of course free from the bias of interested feelings.

I have, as I said, been speculating upon human hopes and human wishes—their reasonableness and unreasonableness, and the frequent disappointments which attend them. I have, as in duty bound, maturely weighed and considered the different views and opinions entertained by others, as to what the world will afford, and the advantage to be made out of things as they *are;* for as to making them better, and setting the world to rights—an endeavor which I have all my life been engaged in—I have given up the attempt in despair, as hitherto I have met with no kind of success. I have neither been able to control the nature of man nor to regulate the elements; and, as if a singular fatality attended upon my endeavors, I have failed even in regulating the affairs of the nation.

I have come to the conclusion, therefore, that what *ought* to be *is*, and that all the evils and errors we fall into come from a misapprehension of what things are —that we have only to see clearly and think understandingly and we shall find all right. Each man has his theory of human life and I have mine. This theory I would gladly unfold, but to do so in full would require an entire volume of the "Journal," I have neither time nor space therefore, for the task. But since I have entered upon the subject, I will give some of the outlines, and compress what I can into my narrow limits. After all, there is nothing very novel in what I have to say; a great deal has been said on the same subject by others, in all times, although in another form. But to come to the point—the only real object in life is happiness; this is what all equally pursue, though only one in a thousand seeks it in the right path, and this one often gets jostled out of it by so many others running counter to his direction.

'If found at all,' as said by an ingenious author, 'it is generally at our elbow,' and consists in little besides a placid temper and contented mind.

My speculations at present, therefore, will be limited to the inquiry as to what are the best means for obtaining happiness, or if this is considered to be a negative rather than a positive state, I will discuss the means by which we may be enabled the most effectually to shun discontent and uneasiness. Our command over external circumstances is exceedingly limited; we can, for the most part, only so discipline the mind, that they shall not have the power permanently to disturb its tranquility.

——"The mind is its own place,
Can make a Heaven of Hell, a Hell of Heaven."

Much depends upon physical temperament, or upon constitutional causes

peculiar to each individual; and whether these be of organic or mental origin, we can exercise over them but a limited control.

But much more depends upon those habitual states of feeling produced by the passions or emotions of the mind; and fortunately, these are of a nature which admits to a considerable extent, of their being regulated. My chief concern at present, will accordingly be with the passions, the principal of which, and their several effects upon the human mind and character, I will briefly notice. Some of these are favorable, and some unfavorable to my purpose in the enquiry after happiness.

And first, in regard to such as are unfavorable, I will set down, *Avarice*, *Pride*, *Ambition*, and *irritability*. Avarice produces anxiety and pure selfishness; and no exclusively selfish man can, in my estimation be happy, he has no sympathies for others, and none can ever sympathize with him; he is in solitude even while in the midst of social life. Avarice is among the basest of passions and one which often leads its victim to the commission of many crimes.

Pride (the abuse of self-esteem) meets with incessant disappointments which fester in the mind, and leave it always in a morbid state. The proud man too is apt to be irritable and suspicious.

Ambition is too exciting and restless a passion to permit of any permanently tranquil feelings, and excitement to any great degree is fatal to happiness. That no irritable man can be happy is a truism which stands in no need of illustration. Of the passions or emotions favorable to happiness, I will mention *Hope*, *Vanity*, and *Benevolence*, if this latter may properly be included in the same category with the passions.

Hope sheds her sweet influence over every thing, and possesses a power over the heart of man which is boundless. In the words of an interesting writer, "it supports him under every difficulty and the blackest misfortune, when all is lost he will not believe himself lost; it gleams through the bars, and opens the locks of a prison; nor will it abandon him even at the gallows."

Our early days are gilded over by this delightful passion, as resembling in this spring of our lives, the sweet spring of the year, or as it has been exquisitely described,—"The morn and liquid dew of youth." Hope may encounter a thousand disappointments, but still it survives and imparts its soothing influence. And vanity is almost as elastic; the vain man will console himself in a thousand ways for the disappointments which he suffers, nor is he over nice in the distinctions which he covets. He will even encounter contempt and ridicule, rather than not come into notice, as the man who boasted that George II had spoken to him, and when asked what he said, it was found to be—'You rascal, what are you doing in my garden?' The passion of vanity is mostly a harmless one, and I invoke for it the good natured indulgence of my readers wherever they find it; he who entertains it gains by it a certain amount of gratification, and it rarely happens that any one is a loser thereby.

The worst that can be said of it, when in the greatest excess, is that it is ridiculous:

> "Almighty vanity to thee we owe
> Our zest of pleasure, and our balm of woe."

Benevolence I regard as an essential element in every constitution that is happily organized. It is almost synonymous with virtue, which Helvetius defines to be a desire for the general good. Without virtue there can be no happiness, although I am far from believing with Epicurus that virtue alone constitutes happiness. The purest source of pleasure, however, comes from the consciousness of doing good—of having been instrumental in promoting the happiness of others. This is a cheap means of enjoyment, and one that is within the reach of all, both rich and poor, if it be only in administering a cup of cold water to parched lips, or in applying soothing words to wounded feelings.

And if this truth could be thoroughly impressed upon the minds of all, so as to bring about an universal interchange of good offices, and universal, kind, tolerant, and charitable feelings, what a superabundance of happiness might there not be in the world.

So much, at least, as above stated, depends upon our passions, which when well regulated conduce to our happiness.

Although we cannot altogether transmute our nature, we may effect much as regards native propensities, by the exercise of a correct discipline. Habits of thought, feeling and action govern our lives; we may guard against, or correct evil habits and induce good ones. We may, by perseverance, suppress, in a great measure, one set of impulses, and cherish another into life and vigor by indulgence—having a due regard to the cardinal virtue, prudence, in the limits we prescribe.

It is to our affections that we must mainly look for happiness, but we stand in continual need of entertainment for the mind, (our rational nature,)—this we can only find in mental activity—in the pursuit of some rational object to be supplied by business, literature, or the investigations of science. Without some such object we can, indeed, have but little enjoyment of life; and when there is none imposed by necessity, as in the ordinary associations of men, it behooves us to substitute factitious ones.

Some object of pursuit we must have, or we should soon weary of life—such is our nature.

A great deal depends upon the nature of the object which a man has before him, as associated with the circumstances, character, and condition of the individual—upon the estimate he forms of it, and the views which he entertains regarding it. Our opinions of things are according to our views of them, and our actions are determined by our opinions; it is therefore important in the highest degree, that our views should be correct.

Correct views of things are only to be obtained by the right and constant use

of our faculties of observation and reflection; by a diligent cultivation of all the powers of the mind, divested as much as possible of all preconceived opinions.

Philosophers say that men make a *wrong estimate of things*. They are too apt, when they become deeply interested in an object, to look at its attainment as an end, when it should be regarded only as a *means*.

This is almost universally the case with money seekers, and it has for a concomitant this additional evil, that their eagerness for obtaining it has the effect of obscuring the understanding, and confounding in their minds the distinctions of right and wrong. In this way, and for want of a due regulation of the mind and passions, the pursuits of men become too exclusively material, and they lose all enthusiasm, if not all regard for virtue. They are under the influence of excitement and are habitually looking beyond the mind for that which is to be found only within it.

It is the all absorbing, and all devouring passion of money making which, in modern days, robs us of the true social affections, and deprives us of those simple enjoyments which otherwise would be so easily obtained in the interchange of mutual good offices.

Whither are we people of the West and of the United States tending? To what goal? We cannot remain stationary. Is our course then one of upward or downward tendency?

Our thoughts are all given up to low politics, to trade, to commerce, to place hunting; and society—what we call such—contains no correctives, offers nothing which can in any degree tend to raise our aspirations to higher and worthier objects.

Mammon has become our God, and Mammonism our religion. 'We havs lost our faith in the Noble, the Beautiful, the Just; we have lost our faith in the Highest, and have come to believe in a worship the lowest, even Mammon,'—

> "Mammon, the least erected spirit that fell
> From Heaven; for even in Heaven his looks and thoughts
> Were always downward bent, admiring more
> The riches of Heaven's pavement, trodden gold,
> Than aught divine or holy else enjoy'd
> In bealific vision."

"Give us dollars, dollars, and acres of land," is the incessant cry of avarice and cupidity; and these are sought after and accumulated at the expense and sacrifice of nearly all the charities of life, until the world has become heartless.

Is this system to prevail forever? Is society incapable of being differently organized, or has man no higher or more glorions a destiny allotted him than to be forever grovelling in the dirt?

Tell us, O ye philosophers, so skilled in the intricacies of the human heart, and the mysteries of man's nature, what are the potent means we shall employ in the work of regeneration?

Instruct us by what modes of discipline, or by what enticements to reclaim the headlong race, and confer happiness upon the species.

ART. V.—REMINGTON'S BRIDGE.

FROM THE MERCHANTS' MAGAZINE.

Those who have read the narrative of the sufferings of ragged and hungry Genius, as told by the sufferers themselves in Johnson's Life of Savage and in Goldsmith's Vicar of Wakefield, will listen to the following letter, addressed to a distinguished gentleman in this country, a chapter of autobiography, with like interest; for, like those narratives, it not only describes the trials, but is written, also, with the energetic pen of Genius.

The writer is Mr. J. R. Remington, a young man, a Virginian by birth. After residing for a while in Alabama, a few years since he went to Washington, and exhibited there the models and drawings of several ingenious and (as they have since proved) valuable mechanical inventions of his own. At Washington he made little headway. One of his inventions was a bridge, constructed on a novel principle, or rather a principle newly applied, and by which bridges of timber of great length can be thrown across rivers and wide railroad cuts without intermediate support. People looked and admired; but somehow, although they saw much that was strikingly original, they could not see how the contrivances were to be made practically useful. Fulton's first steamboat drew crowds of such admirers round it when it was on the stocks.

Mr. Remington was not discouraged. We are sometimes apt to look upon the mechanical and mathematical turn of mind as naturally dry, crabbed and cold. Yet there can be no doubt (and multitude of brilliant examples, of late years, attest the fact) that the great mechanical inventor is borne up by as much of the "ardor of confident genius," the "evidence of things not seen," and feels as sensibly "the substance of things hoped for" as the great poet, or any of those whom we are more apt to class among geniuses of more exalted mood. The source of the mistake seems to be the very excess of imagination in him, and the lack of it in us; while we, having eyes, see not the end, but the means only, he is looking at the end; while we think of the dull machinery and the uncouth figures with which he works, his thoughts are running forwards and soaring upwards to results worked out, complete!

Mr. Remington went to England, arriving in London early in January, 1847. He went, to use his striking language, in "search of a man;" like the old philosopher, he sought but for one mind capable

of sympathetic appreciation. He carried with him his plans, a teeming brain, a letter of introduction, and an empty purse.

The story of Mr. Remington's success has been told by the lips of others, as was most meet; we leave it to himself to describe his struggles and probation. His letter would be marred by any attempt on our part to add or amplify.

STAFFORD, STAFFORDSHIRE, *August* 15, 1848.

MY DEAR SIR:—I should have written sooner, but that I had nothing pleasant to say. I reached London on the 1st of January, 1847, without money or friends, which was just the thing I desired when I left America, and just the thing, I assure you, I will never desire again. I commenced operations at once, on the supposition that, in this overgrown city, I would at least enlist one man. But Englishmen are not Americans. An Englishman will advance any amount on an absolute certainty, but not one penny where there is the slightest risk, if he got the whole world by it. I spent the first five months looking for this man with unparalleled perseverance and industry, living for less than three pence per day. I am convinced that few persons in London know so much of that incomprehensibly large city as myself. But alas! my wardrobe was gone to supply me with wretchedly baked corn bread, on which I lived entirely. I slept on straw, for which I paid a half penny per night. I became ragged and filthy, and could no longer go among men of business. Up to this time my spirits never sunk, nor did they then; but my sufferings were great. My limbs distorted with rheumatism, induced by cold and exposure—my face and head swelled to a most unnatural size with cold and toothache, and those who slept in the same horrid den as myself were wretched street beggars, the very cleanest of them literally alive with all manner of creeping things. But I was *no* beggar. I never begged, nor ever asked a favor of any man since I came to England. Ask George Bancroft who I called upon two or three times, if ever I asked the slightest favor, or even presumed upon the letter you gave me to him. I did write him a note, asking him to come and witness the triumph of opening the bridge at the Gardens, and delivered the note at his own house myself; and although Prince Albert came, I never got even a reply to my note. If Bancroft had come, and been the man to have only recognized me in my rags as I was, it would have saved me much subsequent suffering. I will not believe that Bancroft ever saw my note, for his deportment to me was ever kind.

The succeeding three months after the first five I will not detail, up to the time I commenced to build the bridge. I will not harrow up

my feelings to write, nor pain your kind heart to read the incidents of those ninety days. My head turned grey, and I must have died but for the Jews, who did give me one shilling down for my acknowledgment for £10 on demand. These wicked robberies have amounted to several hundred pounds, every penny of which I have had to pay subsequently; for, since my success at Stafford, not a man in England who can read, but knows my address. It cost me £10 to obtain the shilling with which I paid my admittance into the Royal Zoological Gardens, where I succeeded, after much mortification, in getting the ghost of a model made of the bridge. The model, although a bad one, astonished every body. Every engineer of celebrity in London was called in to decide whether it was practicable to throw it across the lake. Four or five of them, at the final decision, declared that the model before them was passing strange, but that it could not be carried to a much greater length than the length of the model. This was the point of *life* or *death* with *me*. I was standing amidst men of the supposed greatest talent as civil engineers that the world could produce, and the point decided against me! This one time alone were my whole energies ever aroused. I never talked before—I was haggard and faint for want of food—my spirits sunk in sorrow in view of my mournful prospects—clothes I had none—yet, standing over this model, did I battle with those men. Every word I uttered came from my inmost soul, and was big with truth—every argument carried conviction. The effect on those men was like magic—indeed, they must have been devils not to have believed under the circumstances. *I succeeded.* My agreement with the proprietor was, that I should superintend the construction of the bridge without any pay whatever, but during the time of the building I might sleep in the Gardens, and if the bridge should succeed, it should be called "Remington's Bridge." I lodged in an old *lion's cage*, not strong enough for a lion, but by putting some straw upon the floor, held me very well, and indeed was a greater luxury than I had for many months. The carpenters that worked on the bridge sometimes gave me part of their dinner. On this I lived, and was comparatively happy. It was a little novel, however, to see a man in rags directing gentlemanly looking head carpenters. The bridge triumphed, and the cost was £8, and was the greatest hit ever made in London. The money made by it is astonishingly great, thousands and tens of thousands crossing it, paying toll, besides being the great attraction to the Gardens. Not a publication in London but what has written largely upon it. Although I have never received a penny, nor never will for building the bridge, I have no fault to find with Mr. Tyler, the proprietor, for he has done all fully

that he promised to do—that was to call it "Remington's Bridge." The largest wood cut perhaps ever made in the world, is made of the bridge. Every letter of my name is nearly as large as myself. The bridge to this day is the prominent curiosity of the Gardens. You can't open a paper but you may find "Remington's Bridge." Soon after it was built I have frequently seen hundreds of men looking at the large picture of the bridge at the corners of the streets and envying Remington, when I have stood unknown in the crowd, literally starving. However, the great success of the bridge gave me some credit with a tailor. I got a suit of clothes and some shirts—a clean shirt. Any shirt was great, but a clean shirt—O God, what a luxury! Thousands of cards were left for me at the Gardens, and men came to see the bridge from all parts of the kingdom. But with all my due bills in the hands of the hell-born Jews, of course I had to slope, and came down to Stafford. I first built the mill, which is the most popular patent ever taken in England. The coffee pot and many other small patents take exceedingly well. The drainage of Tixall Meadows is the greatest triumph I have yet had in England. The carriage bridge for Earl Talbot is a most majestic and wonderfully beautiful thing. Dukes, marquesses, earls, lords, &c., and their ladies are coming to see it from all parts. I have now more orders for bridges from the aristocracy than I can execute in ten years, if I would do them. Indeed, I have been so much among the aristocracy of late, that what with high living, being so sudden a transition from starving, I have been compelled to go through a course of medicine, and am just now convalescent. Of course, anything once built precludes the possibility of taking a patent in England, but its merits and value are beyond all calculation, A permanent, beautiful, and steady bridge may be thrown across a river half a mile wide, out of the reach of floods, and without anything touching the water, at the most inconsiderable expense. The American patent is well secured at home I know. I shall continue to build a few more bridges of larger and larger spans, and one of them a railroad bridge, in order that I may perfect myself in them so as to commence fair when I reach America. I have a great many more accounts of my exploits since I come to Stafford, but must defer sending them until the next time. I beg you will write me, for now, since a correspondence is opened, I shall be able to tell you something about England. I know it well. I have dined with earls, and from that down—down—down—down to where the knives, forks, and plates are chained to the table for fear they should be stolen.

I am, my dear sir, your obedient servant,

J. R. Remington.

The bridge erected in the Surrey Gardens was described in the newspapers of the day with some minuteness. The *London Morning Advertiser* of September 7, 1847, speaks of it as follows:

Remington's Aerial Bridge.—This very wonderful and highly ingenious structure, the model of which was described in the *Morning Advertiser* of Thursday last, was yesterday thrown open to the visiters at the Surrey Zoological Gardens, large numbers of whom repeatedly crossed and recrossed it, and expressed a general astonishment at the strength of a fabric composed of such slender materials. The inventor of this bridge is Mr. Remington, of Alabama, a gentleman who has perfected several contrivances of great utility in several departments of art, and who, in the present instance, has demonstrated the extent to which the economy of materials may be carried even in the greatest works. At the first view, Mr. Remington's bridge would impress the spectator with the idea that it was utterly inadequate to bear the weight of a solitary passenger; and after he has undeceived himself upon its capabilities in that respect, he will be completely at a loss to account for the prodigious strength which it exerts. On consideration, however, of the peculiarities of its construction, the difficulties will disappear, and the advantages of its application in a variety of circumstances be established. The chief portions of the fabric are the abutments, or wooden frames, from which the bridge is suspended, or rather, on which it rests. They are formed of a simple frame work of die-square timber, about twelve feet long, and sunk five feet in the ground. The timbers of each abutment are made to rake, or incline, at an angle of about seventy degrees from the river, for the purpose of better reacting against the tension of the bridge when loaded, and are strongly connected by cross scantlings. On the summit of each abutment is a rectangular frame, rising slightly towards the water way, and carrying two transverse scantlings, six feet apart. The four laths, or stringers, which form the basis of the footway, are laid upon these scantlings, to which they are keyed, and which give to the bridge the peculiar curve, on which its efficiency partly depends. But it is chiefly to the mode of forming the stringers that the ingenuity of the arrangement consists, and which, on several accounts, is remarkable. As it would be difficult, or frequently impossible, to procure pieces of wood of the required size to connect the abutments, recourse must be had to the process of scarfing, by the adoption of which, in this instance, stringers of 83 feet in length have been formed by Mr. Remington. They have been made in five scarfs, united by glue, made for the purpose by Mr. J. Lowe, the head carpenter at the Surrey Gardens, by whom the structure was made and put together, and possess throughout their length the longitudinal strength of fibre due to their thickness at each point. They vary considerably in their section, as it is taken from the centre, being three inches and three-quarters at each end, and only one inch square in the centre. These singularly small dimensions have nevertheless been found to carry several heavy loads, with which the efficiency of the structure has been tested. Transverse bars are tacked upon

the stringers, at the interval of an inch or two, and with the addition of a rope on each side to serve as a rail, the bridge is complete. To understand how it happens that a combination of materials, apparently so frail, has carried sixteen men, each bearing timber, and that, as we are assured, and make no doubt of the statement, it is capable of bearing five hundred men, at the same time it must be understood, that the principal elements of the footway, viz, the stringers, are formed and arranged according to the known principles of a science of comparatively modern creation, embracing the facts relating to the strength of materials. The principle upon which the construction proceeds may be thus briefly explained: A slender prismatic beam, though requiring great force to tear it longitudinally, would nevertheless easily give way to a transverse force very much smaller. If suspended by its extremities, and the force made to act at the centre, the rod would snap in the centre; but if one of the points of suspension were shifted, then it would snap near the other extremity. This circumstance is applied to the purpose of a permanent footway by the position of the scantlings, or fulcra, on which the stringers rest, and the operation of which is to remove the tendency of the bridge to break in the centre, and throw that liability on the thicker portions, near the abutments, which are fully able to resist the strain. The stability of the structure may also be referred to another principle, viz: that a beam in a horizontal position, fixed at one end and pressed down at the other, is liable to break off near the fixed end. Here, by the scarfing of the stringers, the central scarf unites the two portions, into which each stringer may be supposed to be divided, and resists at a long leverage, its tendency to snap at the fulcrum. These considerations, though not of a very recondite character, are nevertheless necessary, to reconcile the spectator to what must strike him in the first instance, as being nothing short of an anomaly in the laws of physics. But there the bridge is to assert by its astonishing performances, the truth and easy application of these simple principles, and the economy which it is possible to introduce into fabrics of the kind by their adoption. It only now remains to us to mention that Mr. Remington has abandoned to public service, all interest in this, and in several other useful inventions which he has completed, and to express our hope that a man who has deserved well of his country, first by his labor in bringing his plans to so grand a result, and then by placing no restriction on their use, will reap, in some shape, his reward, or at any rate be esteemed an able and bold engineer.

This success led to something more substantial. The inventor was employed by Earl Talbot to erect a bridge 150 feet in length over the river Trent, on his estates in Staffordshire. The "novelty in bridge building," is thus noticed in the *Staffordshire Advertiser* of July 15, 1847:

Novelty in Bridge Building.—We have lately described some of the wonderful bridges which a recent trip into North Wales had given us an opportunity of inspecting, including the tubular bridge over the Conway, and the Britannia tubular

bridge now in course of erection, and designed to carry the Holyhead Railway over the Menai Straits. We have much satisfaction, this week, in bringing under the notice of our readers a work, in our immediate neighborhood, which, though of much smaller dimensions, is as great a curiosity in its way, and perhaps as vast a triumph of scientific ingenuity and engineering skill as the gigantic structures to which we have alluded. We refer to a wooden bridge which has just been completed over the river Trent, near Ingestre, on an accommodation road of Earl Talbot's, leading from Ingestre to Shirleywich. The architect is Mr. J. R. Remington, a gentleman from Alabama, in the United States of America, of several of whose inventions we have before had occasion to speak.

This bridge is remarkable for the length of its span, about 150 feet, and for the diminutive dimensions of the timber used in its construction. It will almost appear incredible to our readers when we state that the six stringers, or beams, which support the planks forming the floor of the bridge are but five inches square at each end, and gradually diminish in size, until at the centre they are only two and one quarter inches, their length being, as already intimated, 150 feet. The stringers are formed of pieces of oak timber, each about 20 or 25 feet long, attached together by the method technically known as 'scarfing.' The abutments consist of oak posts, six inches square, and 15 feet long, 5 feet in the ground, projecting outward at a considerable angle, and firmly clamped together with iron.

Mr. Remington's own language shall be employed in describing the principle on which the bridge is built. 'The great principle sought to be proved in this bridge (says Mr. R) is that a beam of timber, of whatever size, shape, or length, lying horizontally and resting at each extremity on abutments, is as strong, and will require as much weight on the top of it to break it as it would take to break the same piece when pulled longitudinally in the direction of the fibre.' We apprehend that Mr. Remington's meaning would be better understood if he had said that the principle consists in the longitudinal power of timber being applied in a curvilinear form, by which every portion of the material is brought at once into play, and supports an equal share of the strain. Instead of springing from the abutments as an arched, or resting upon them as a horizontal bridge, the stringers may be said to hang or be suspended from the piers, thus bringing the principle of the longitudinal bearing into action.

We understand that many practical men to whom the principle was explained doubted in the first instance its applicability to a bridge of this size, but they are now willing to admit its complete success. That success indeed, is demonstrated. The bridge is now in use. We have seen several carriages pass over it, and have ourselves driven across it. There is a vibratory motion when anything passes along the bridge, but there is scarcely any perceptible deflection; and we cannot but express our own conviction of the complete triumph of this novel and most extraordinary system of bridge building.

The stringers curve gracefully upwards from each abutment, and then grad-

ually bend in a curvilinear direction downwards to the centre of the bridge; the lowest point being twenty-four inches below the level of the abutments. The curves near to the abutments are designed more for beauty than for strength; but we understand they are indispensable in faulty foundations, which is the case in the present instance. There is a hand-rail on each side of the bridge, attached to the floor by trellis work; and as the hand-rail is of considerable strength, and is fixed to the abutments in the same mode as the strings, it adds materially to the security and solidity of the bridge.

The main advantage of this description of bridge is its *cheapness*. The cost of the structure which we are describing is only about £200; whereas, a bridge to accomplish the same purpose, built on any other plan, would have required an expenditure of many thousand pounds. Another advantage is, that such a bridge can be erected in situations where any other wooden bridge would be impracticable. A third advantage is, that the span may, as we are informed, be extended ten times as far as any wooden bridge ever yet constructed; and it may be added, that the inventor is of opinion that such bridges will be more durable than those of any other make.

Although many foot bridges have been erected on this principle in America, and one in the Surrey Zoological Gardens, yet this is the first instance, we are informed, of a bridge of this construction being built for carriages. Earl Talbot having satisfied himself of the feasibility of the plan, instructed Mr. Remington to build the bridge; thus affording another proof of that enterprise and zeal for improvement, of which his lordship's estates afford so many conspicuous and successful examples. His lordship and family have frequently used the bridge, and are much gratified with the success which has attended the experiment. Lord Hatherton has likewise inspected it twice, and has, with a heavily laden carriage, passed over it. On Thursday, a cart with a load weighing two tons passed over it without occasioning a deflection, we are authentically informed, of the eighth of an inch.

When we state, in conclusion, that such has been the expedition used in the erection of the bridge, that six weeks ago the timber of which it is constructed was growing, we think we have proved that "Novelty in Bridge Building" was not an inappropriate title to the present article.

Another triumph of the young inventor, another wave to the tide now at flood, at last, was his success in draining a swamp belonging to Earl Talbot, by several ingenious contrivances, described (not very clearly) in the following article, also from an English paper:—

The Drainage of Tixall Meadows.—Many of our readers are aware that amongst the great improvements which have been effected by Lord Hatherton on his estate at Teddesley, in this county, not the least is in the important branch of draining, which has been so admirably managed that the water drawn from the higher portions of the estate is used to irrigate the lower lands, and is also made

doubly serviceable by being employed to turn a water-wheel, the power thus gained being employed in grinding, threshing, &c. The enemy is by these means converted into a friend. A somewhat similar, though perhaps a more singular and ingenious experiments has just been tried on the meadows in Tixall, near this town, on the estate of Earl Talbot. These meadows are about seventy acres in extent, and are in the occupation of Mr. Warner and Mr. Scott. They lie so low, and are so level, that their surface has been covered with water of late years for almost nine months out of the twelve. The evil has lately been increasing to such a degree that this great extent of land was rapidly becoming little better than a gigantic bed of rushes and a useless swamp. Engineers of celebrity had been consulted on the subject, but the plans they proposed for draining these meadows were so expensive and so doubtful as to their probable issue, that all idea of adopting them had been abandoned. Some months ago, Mr. Remington, of whose clever inventions we have had occasion repeatedly to speak, inspected the *locus in quo*, as the lawyers call it, and said he would undertake to drain it. The work was commenced about five months since; and a shallow ditch on the north side of the meadows has been converted, by means of an embankment, into a small canal, about a mile in length, and a vast quantity of surface-water is by its means diverted from the meadows, and being carried to a point where the principal drain running down to the centre of the land terminates, it is used for the purpose of working a most ingenious engine of Mr. Remington's invention, for pumping the water out of the drain. The engine consists of a circular pan, constructed of sheet iron, four feet four inches in diameter, and ten inches deep. At the bottom of the pan is a throttle-valve, so formed as to close when the water rushes into it; but when the weight of water lowers the pan to a certain point, the valve opens to allow the water to escape. A rod from the centre of the pan is connected by means of pullies, and a chain, with a pump working in the adjoining drain; and the chain beam is so regulated as to form a balance between the pan and the pump. A small bolt at the end of the canal, which we have described, is raised by means of an iron arm attached to the rod of the pan, every time the pan ascends, and the bolt is further gradually elevated by means of two weights attached to a lever, by which simple contrivance, when the bolt is lifted to a short distance, the weight carries it to the full height, and ensures a discharge of water sufficient to lower the pan. There are several minute contrivances connected with this simple but effective machinery, which must be seen to be properly understood and appreciated; such, for instance, as the one which opens the valve of the pan on its descent. In order to meet the variable height of the water below, that instrument is made to float. Indeed, one of the great objects accomplished by this method of applying water power is, that no ordinary amount of back water can interrupt the working of the engine. The pump is also of as simple and ingenious construction as the other part of the apparatus. The main cylinder is thirty-two inches in diameter, and the plunger twenty-seven; and,

notwithstanding the fact that the plunger does not come in contact, by packing or otherwise, with the sides of the cylinder, the effect of the customary piston of a pump is produced without loss of water. According to Mr. Remington's calculation, twenty-six gallons of water are raised and discharged by the pump at every stroke. Every one who inspects this beautiful contrivance, must be struck with its admirable adaptation to the purpose intended. It has been at work three days. One of its strongest recommendations is, that it is self-acting, and requires no attention. By means of what we have called the canal, a large quantity of water has been removed from the meadows, which are firm and dry compared with their state ten days ago; and the utmost confidence is expressed by both Mr. Warner and Mr. Scott that, by this clever and comparatively inexpensive contrivance, a complete drainage will be effected.

ART. VI.—THE RISE, PROGRESS, AND INFLUENCE OF THE FINE ARTS.

BY ALFRED S. WAUGH, ESQ.

SCULPTURE.

Although Greece could not lay claim to the honor of being the birth place of Sculpture, yet she was distinguished above all others for the maternal affection with which she attended upon the young Goddess after her introduction into that favored land, and for the devotion with which she conducted the progress of the celestial toward—what indeed, may be truly said—her utmost perfection, under the hands of Phidias. No longer trammelled by the fetters which bound her to the service of mental degradation, in the land of Egypt, that soul, which for centuries was confied by the decrees of a despotic priesthood, now burst her bonds and swelled beyond the measure of the chains which fell from around her, and mounting aloft on the wings of science, soon displayed her intellectual majesty to the delighted eyes of her faithful worshippers. But ere she started in that glorious career of immortality, it was found necessary to call to her aid the services of agents of a very important character—agents by whose assistance she was enabled not only to strive with mortals here below, but even to compete with the very gods themselves.

Previous to this, the utmost effort made by the sculptor seemed to have no higher aim than simply a rude resemblance of form, without the slightest attempt at portraying that which alone gives value to every work of art, which can give it any claim to rank awong the emanations of genius, namely, action, emotion, feeling, passion, and the qualities of the mind.

"The Egyptian arts," says that able sculptor and scholar, Flaxman, "were in

progressive states of improvement, from before the time of Moses to the invasion and subjugation of the country by Cambyses, the Persian, a period of about one thousand years, and the arts of Greece, from their rudest beginnings, before the time of Dœdalus, rose to high perfection in about nine hundred years, or the reign of Alexander the Great. In the early times of Greece, Pausanias informs us the twelve gods were worshipped in Arcadia, under the forms of rude stones, and before Dœdalus the statues had eyes nearly shut, the arms attached to their sides, and the legs close together; but as geometry, mechanics, arithmetic and anatomy improved, painting and sculpture acquired action, proportion and detailed parts."

As science advanced, the arts of design progressed, for it was absolutely necessary that the one should attain to a certain degree of perfection before the other could be cultivated with success, and in order to imitate the master work of all creation, it became requisite for the artist to be familiar with the structure of the human form, and by the measurement of man himself, to construct such a system or standard as should regulate the height of the body or limbs with all their relative bearings and due proportions.

"In considering the assistance afforded by science towards the perfection of art," says Flaxman, "we observe, that as soon as the painter or sculptor has succeeded in a rude or general resemblance of man, he then attempts the natural differences of sex and age, the civil distinctions of orders, as the soldier and the priest, the king and the slave; he proceeds to the expression of passion and moral qualities, and at last rises to supernatural representation. In this progress he is assisted and directed by the forms of society in which he lives, the principles of philosophy, and the dictates of religion; these are the natural and regular steps by which art approaches perfection.

"The arts of design (particularly Sculpture,) may be said to be consecrated to religion from the very cradle.

"Thus in the early times, when their figures were ordinary and barbarous, having only the rudest character of imitation, without any of its graces, their gods were distinguished by their symbols only—Jupiter by his thunderbolt, Neptune by his trident, and Mercury by his caduceus; not unfrequently these, and other divinities, were represented with wings to shew they were not men."

"We may distinguish the ancient art of Greece as three ages:—the heroic age, the philosophic age, and the age of maturity or perfection.

"By the heroic age, we understand the state of society described in the poems of Homer and Hessiod, in which the land was cultivated, and cattle fed to supply the wants of life; but whose most important business was predatory war. To this age we may refer the earliest productions of Grecian art—of this age are two lions over the gate of Mycene—of this age, from a similarity of style, we may also believe many small bronze and stone statues to have been the production. Perhaps, though rude and ill-formed, they were domestic divinities: early in the progress of idolatry, so far as we may venture an opinion upon this class of art,

the endeavor was limited to the single figure, naked, and in few and simple attitudes. It is nevertheless likely, before this age passed away, the artists became more bold, and adorned their vases with subjects of three or four figures, such as frequently occurred in their habits of life, a conversation, a battle or a procession, the designs of these compositions appear like profiles of their statues, and unconnected with each other.

"The second 'age of art,' which we shall denominate the philosophic, commenced when the seven sages or wise men flourished in Greece, about 700 years before the christian era; when the mental faculties were expanded, and when, by contemplation and science, man was elevated from savage life to the dignity of a rational creature. In this period Solon and Lycurgus reformed the laws of preceding legislation, and rendered the system more salutary in the correction of crime, and the security of justice to their fellow-citizens.

"The seven sages, by the example of their own heroism and virtue, enforced the moral and political order which their wisdom and prudence taught.

"In the school of Pythagoras, mathematics, astronomy, geometry, arithmetic and music, were diligently cultivated; the structures of animals was studied, and the contemplations of philosophy elevated the mind above the grosser allurements of sense; the improvement of civil and political security afforded additional leisure for all ingenious and liberal pursuits, while the advancement of science supplied means for nearer approaches towards perfection.

"In the institutions of Greece, the gymnastic exercises exhibited all the various beauty of the human figure, diversified by all the difference of motion the several exertions could produce, with the multiplicity of anatomical changes in action and remission occasioned by each exertion of body and limbs.

"It cannot be denied," continues the author, "that the religion of ancient Greece was gross polytheism; but this was the religion of the multitude, that of the philosopher was much more pure. It allowed, indeed, the ministry of subordinate divinities, angels, and heroic souls, but all directed by the unerring wisdom and providence of the one Omnipotent. The graces and perfections of these ecclesiastical intelligences and ministers are so described in the 'Dialogues of Plato,' and by the Pythagoreans, as to lead the artist to the choice of supreme natural beauty, for the object of his imitation throughout the numerous ideal orders of the Grecian theology, and elevated the real persons by the noblest traits of limb, feature and character. The first essays of Grecian art, in the heroic age, prove they were neither stronger nor swifter in the race than other nations: but the improved imitation of nature, founded on the sure principles of science, left their competitors at a distance not to be recovered; and the ability and zeal with which they pursued their advantage, gave them the possession of the palm beyond dispute.

"The Greeks, in this age, added the cultivation of letters to their discoveries in science and improvement of philosophy. Hipparchus is said to have first made the Athenians acquainted with Homer's Rhapsodies, (and from which that people

received their system of theology,) these were recited in the Pantheniac solemnities, and became so popular that they were continually quoted in Dialogues of Plato, and succeeding writers."

"Thus was infant art inspired by the spirit of poetry, and the effects of this inspiration are seen" in the sublime works of Sculpture during the reign of Pericles.

By the aid of geometry the forms for the configuration of bodies were ascertained, by curves and angles the various motions of the figure were determined, whilst arithmetic assisted in measurement and proportion. The anatomical observations of Thales, Pythagoras and Alcmeon, prepared the way for the more connected inquiries of Hippocrates, and thus the gradual advancement and connection of art and science, obtained sound principles to ensure a certain and felicitous practice.

The third age of art was no doubt called into practice by the annihilation of those fleets and armies designed by the Persians for the total destruction of every vestige of Grecian freedom. This achievement, so illustrious on the page of history, being performed by a comparatively small band of patriots, exalted the Greeks in their own estimation, and gave them renewed energies in every pursuit that could tend to elevate and dignify them in the eyes of their neighbors. The temples which had been destroyed by the ravages of war, they rebuilt with renewed magnificence, adorned their pediments and friezes with gods and heroes, and commemorated their own glories in the basso relievos which beautified the interior and exterior of their sacred edifices. The colossal statues* of their gods which they erected, resplendant in gold, ivory and precious stones, became the admiration and wonder of the world; and although they now only exist in description, their fame has come down to us of the present day, only to dazzle and confound the creations of our own artists. Nor were the smaller works of their chisel less deserving of our attention, for, in form, proportions, character, dignity, simplicity, and elegance, they silently, but eloquently declare the matchless grandeur of the god-like art in those days of giant intellect. Their groups possessing all the essential and united interests of action and passion, elevated and heroic sentiments, consistent with the persons engaged in them, stamps them at once with a sublimity that leaves no doubt on the mind that sculpture has long since attained a matchless superiority.

Their basso relievos being epic and dramatic compositions, and the most nearly allied to painting, possessed great variety in their subjects, combining diversity of lines, with whatever, in the opposition and distribution of light and shadow tends to produce the most powerful and agreeable effect in the relief of the figures from a plain back ground.

The statue of Olympian Jupiter was the most renowed of all the works of an-

*The largest colossal statues of the Egyptians were seventy-five feet in height, and therefore the Greeks excelled them in the magnitude as well as the beauty of these enormous monuments.

cient art,† and the same sculptor placed a statue of Minerva,‡ twenty-six cubits high, formed also of ivory and gold, in the Acropolis of Athens. Clothed in a tunic which reached to her feet, her head encircled with a helmet adorned with horses and gryphons, and bearing in her hand a shield embellished on the front with the fight of the Amazons, and on the concave side, the battle of the Gods and Giants. On her sandals was represented the contest of the Lapithœ and Centaurs, and on the base or pedestal which supported the Goddess, was depicted the birth of Pandora in the presence of thirty divinities. She stood erect, in stern and heavenly majesty, commanding by her sublime simplicity the homage of millions of worshippers.

The elder Pliny tells us that the colossus of the sun in the Island of Rhodes, excited more astonishment than all the other colossal statues, on account of its enormous height.§ This statue was thrown down by an earthquake, after standing there fifty years. This work of bronze appeared perfectly miraculous when viewed as it lay on the ground. The fingers were larger than many statues, and few men were able to span the thumb. Twelve years were employed in the execution of this statue, and at a cost to the State of 300 talents.‖

The most numerous class of ancient statues were about the size of life, or approaching seven feet; this height is distinguished as the heroic.

Statues were anciently appropriated to divinities. Sculpture was not employed in portraiture except for some illustrious cause which was deserving of perpetuity.

It being the custom for all conquerors to dedicate their statues, those who had been thrice victorious had exact portraits of their persons impressed upon the marble. "This," says Pliny, "was afterwards universal, and now the forum of every municipal town begins to be ornamented with statues to prolong the memory of men, and have the honors of the age inscribed on their bases, lest they should be read only on their sepulchres. In the course of time this has been done abroad, in public courts and private houses. Thus clients have determined to celebrate their patrons."

After the adoption of the custom of bestowing this honor on distinguished merit, heroic memorials increased with every battle; statues of legislators, poets, philosophers, and all whose great deeds, public spirit, or rare qualities of mind raised them to distinction, shone forth in the porticos of public buildings, in the prominent places of renowned libraries, and national museums, and even in the open air, they added their stately presence to serve as quiet monitors to the crowds who frequented the parks and public walks.

†"This great work, which raised the fame of Phidias above all the sculptors of antiquity, has numerous imitations still existing in marble and bronze, and on coins of Alexander the Great and his successors; also on the Emperor Domitian's medals in large brass."—*Flaxman.*

‡Quintilian says: "His Athenian Minerva and Olympian Jupiter, at Elis, possessed beauty which seemed to have added something to religion, the majesty of the work was so worthy of the Divinity."

§ This statue was 105 feet high.

‖About 60,000 pounds English.

The principal schools of Sculpture appear to have been Athens and Rhodes; in the first, the school of Phidias was established; and among its pupils and emulators, it is not unreasonable to suppose, were formed the sculptors whose labors adorned the Temple of Theseus and the Parthenon; and from them also the successive pupils descended, whose works embellished the Roman empire.

The other school of sculpture is likely to have sprung from that of Athens. It is recorded that the Roman conquerors carried away with them from this place, no less than 3,000 statues. To this school we are indebted for two noble groups, the Laocoon, and Zethus and Amphion.

The arts of Greece, carried as they were to such perfection, that succeeding generations have been unable to equal, and never to excel them, mutely demand the homage of every beholder, while they afford the same example of excitement, admiration and instruction to the artist of every age and country, where civilization has spread its mantle o'er the land.

The Greeks in their uncivilized state did not excel their barbarous neighbors in the arts; but after religion had given the first impulse to sculpture, philosophic improvement furnished the artist with rules; legislative wisdom, by its moral and civil right, reduced society to a more settled state, and gave tranquil leisure for the cultivation of liberal and enlightened studies. The institution of gymnastic games, furnished the artist with an invaluable field of observation on the actions and motions of the human figure, especially as the actors in these games were unencumbered with drapery or dress of any kind. The anatomical school of Hippocrates, and the more extended knowledge of that science in the school of Alexandria, gave exact details of all the parts of the human frame, and the dialogues of Plato on beauty, completed the general principles of information for the sculptor; "and as it was a summary of the gradual progress by which the excellence of Grecian art was accumulated, so in its perfections it became the course of study by which every individual artist rose to eminence."¶

In the age of Phidias, when geometry had made considerable advances, and the science of anatomy had been prosecuted with great success, the Olympian games afforded the most perfect lessons to the sculptor by their display of the beautiful machinery of the human system in every possible variation of form and motion. The establishment of regular government gave to the agriculturalist ample and peaceful leisure to cultivate the soil, and to furnish the community with the necessaries of life, at the time society was advancing in other improvements in civilization most favorable to the beauty of the human figure. With these advantages the human figure was represented in the highest state of physical perfection, youthful beauty, elegant proportions, and that strength and elasticity of limb which indicates temperate regimen and great exercise of body.

"Mere form," says Flaxman, "however harmonious in its proportions, or beautiful in the smoothness and perfection of its finished surface, without the ex-

¶Flaxman.

pression of sentiment and action, is but dead, and no other than a corpse, which has been quitted by its immortal spirit." Therefore, the Grecian artist, fully aware of the importance of stamping his works with the impress of thought, emotion, and passion, found it incumbent to investigate the strongest affections, conjugal, parental, social, and filial, in order to endue his productions with the power of commanding kindred affections in the beholder.

The Greeks who were the first to give this mental superiority to their sculpture, sought for nobility of sentiment and the distinguishing characteristics of the gods and heroes in the writings of Homer and the theological speculations of Pythagoras and Plato.

From these they learned that all bodily perfections and beauty were derived from mental superiority, and that healthful bodies, as far as form and power extends gave great beauty, so did the expression of the most perfect mental qualities add animation to these forms and gave the characters of magnanimity, justice, benevolonce, and dignity to the faces and figures of their divinities, and whatever perfection either in face or figure they wished to exhibit, could only be done by giving expression to the sentiments of virtue and mental sublimity in both gods and mortals.

Thus by preconceiving greatness within themselves the sculptors of antiquity were enabled to rise superior to servile copy and to take rank with the very gods whom they represented. It was by soaring to the regions of intellectuality and associating with the celestial essences they were able to approach the Divinity and exercise a commanding influence over the works of Omnipotence here below.

The influence which this art exercises over man is felt and appreciated in proportion to the direction given to its productions. Emanating as it does from the God who made us, it is capable, when properly directed, of a vast amount of good to the human race, it stimulates nations and individuals to the noblest deeds and powerfully tends in its silent grandeur to urge the rising generation to every pure and enobling pursuit that can elevate the character of man.

ART. VII.—M'ADAMIZED ROADS IN ST. LOUIS COUNTY.

The following article from the pen of our friend Judge Williams, was published some weeks past in the leading papers of the city; and the principles involved in his scheme of carrying out a system of road improvement for St. Louis county having attracted attention, we publish it at present for the purpose of inviting our citizens to take some active measures upon the subject of the county roads in time for the action of the approaching session of the General Assembly.

The proposition to provide a sinking fund to be raised by taxation

for the purpose of extinguishing the loan within a definite period, and to make the road free to the citizens of the county when this debt shall be paid, is well conceived, and may be regarded as sound in theory. But with due deference to the views of the author, we would suggest that justice would seem to require that the burthen of discharging the debt created on account of the improvement, should be distributed among the greatest number of individuals possible, so as not to violate the principles involved in the plan. This object would be effected by fixing a more remote period for the final liquidation of the debt, and by gradually increasing the amount of the annual payments, so as to correspond with the increase of population and wealth. To illustrate our suggestion, suppose a system of roads should be projected so complete as to be sufficient to serve the county through all time to come, and this system should be carried out at the cost of $1,000,000, to be raised by taxation in five years, in such case every person who should come to the county, and all the property acquired after the debt was paid, would forever be relieved from the burthen of road-making and come in for an equal share of the benefits, without having contributed any thing to the work. This would be an unreasonable sacrifice on the part of the contributors; and it would make but little difference whether the cost of making the road was paid with money arising from taxes or from tolls. Hence, while we fully concur in the proposition to provide for the liquidation of the loan within a definite period, we are nevertheless of the opinion that the time should be made sufficiently long to throw a portion of the burthen on the rising generation. This would be good economy; for, by thus dividing the burthen, we shall be able to achieve more for ourselves and for them also.

EXTENDING OUR McADAMIZED ROADS.

I beg leave, through your columns, to propose a plan to raise funds for the purpose of continuing the M'Adamizing of our county roads to Manchester and St. Charles. The distance of these two roads together is about thirty miles, which at a cost of $5,000 per mile, would amount to $150,000. Give the county the privilege of borrowing this sum for fifteen years, and establishing two gates on each road, one near the city on each line of road, the tolls derived from which to be applied to the payment of the interest on the loan and to the keeping of the roads in repair. In addition to this a sinking fund may be raised by the tolls derived from the two second gates and an annual appropriation of five per cent. on the principal, out of the county revenue, which would rapidly reduce the debt. If you deduct $5,000 yearly for each second gate, and add five per cent. on the principal from the taxes, which would scarcely be felt by the county, the whole cost of these roads would be paid in a few years, as the tables which I have sub-

joined will more fully show. The citizens of the county and city would only pay toll at the gates nearest to the city, and five per cent. in the way of taxes, on the principal of the loan annually. I think that will do for them. The balance of the traveling community will pay at the two remote or second gates, say $5,000 each, annually, and if the two latter gates will yield this amount, which I think they will, (and if they should fall short in a small amount for the first three or four years, the traveling will undoubtedly increase in seven or eight years,) the gates will be able to meet all demands against them, and after the whole amount is paid, both principal and interest, the two gates nearest the city may be taken down, and the tolls derived from the remote gates will be amply sufficient to keep the roads in repair, and the citizens of the county and city be wholly exempt from paying any toll on these roads. As they made the roads they should at least have an equal chance with the rest of the traveling community. Taking all things into consideration, no person, I presume, will murmur at paying a small toll to travel on a good smooth road; and as it is out of the question ever to expect the State of Missouri, or at least a majority of her inhabitants, to go for internal improvements of any magnitude, and the good people of the county and city of St. Louis have ventured to break the ice, I propose to go a little further, with the consent of the people, and continue two or more of our great thoroughfares as above mentioned. I do not wish to go into these improvements blindfolded. It is the business of the people to weigh the subject well, and if they see any other and better plan—or should they desire a less or greater extent of good roads constructed, let them adopt the course which they may deem best. I submit these few ideas or propositions to the public, that they may be prepared against the next meeting of the legislature to ask the privilege of another loan for the improvement of our roads. We should be careful not to push the business too far ahead at one time. We had better do too little than too much. I think we might venture as far as I have proposed, and on that principle, which I think is a safe one. The county will hardly feel the loan a burden after the second year's payment shall have been made. I have endeavored to adjust the plan and the payments so as to benefit ourselves, and have not forgotten the rising generation. If we are able to bear the burden of the day, why not do it? If some of us have waded through mud almost to our knees for the last quarter of a century, there is no reason in entailing this state of things upon our children. Let us take up the subject, then, earnestly, and by going to work slowly and surely—not attempting to accomplish too much at one time, but undertaking only such roads as are mostly needed at the present, and when they are finished and our way open and clear, we can go at it again, and continue at it in this way, until the whole country is accommodated with good roads. Let us do this without partiality, favor or affection to any part of the county. We have two engineers employed for county purposes, and if the good people of the county and city think it best to continue the improvement of the roads in the above way, or in any other way that

may be deemed most advisable, the engineers this fall could run out the road or roads, and establish the grades, and if the funds could be procured, which I think there is no doubt of, the roads could be commenced early next spring, if indeed a great deal might not be done on them this winter, by clearing off the timber and stumps, and even grading the worst places. The laboring class have little or nothing to do in the winter, hands could be got on fair and liberal terms, and if the winter should prove a moderate one, there could be a great quantity of rock quarried and broken, ready for the road in the spring. By letting the road out in short sections, I see no good reason why it could not be finished the first year. I wish to hear from the people, as their will shall govern me in my public capacity.

My proposition is to borrow on the credit of the county, $150,000 for fifteen years, at 8 per cent. per annum. On this loan the county would have to pay an interest of $12,000 the first year, unless the road law should be amended so as to allow tolls sufficient to pay it. But as the roads would not be finished within that time, the money might be borrowed in such sums and at such times as to suit the contractors on the roads, and in this way it might be eighteen months from the commencement of the work before the funds would be on interest.

The amount the county would have to pay yearly, at 5 per cent. on the principal, after the first year, and the toll gates put up—

2 years' interest, - - - - -	$7,500 00
3 " - - - - -	6,625 00
4 " - - - - -	5,793 75
5 " - - - - -	5,004 06
6 " - - - - -	4,253 85
7 " - - - - -	3,541 16
8 " - - - - -	2,864 10
9 " - - - - -	2,220 90
10 " - - - - -	1,609 85
11 " - - - - -	1,029 36
At 5 per cent. - - - - -	$40,442 03
Interest first year by county, - -	12,000 00
years—11)	52,442 03
Average interest yearly for 11 years,	$4,767 45

Tolls—the two first gates must pay for interest and repairs for 11 years—

2d year, $6,000 each, - - - -	$12,000 00
3 " - - - -	10,600 00
4 " - - - -	9,279 90
5 " - - - -	8,006 48
6 " - - - -	6,806 16
7 " - - - -	5,655 84
8 " - - - -	4,582 56

9	" - - - -	3,553 44
10	" - - - -	2,575 76
11	" - - - -	1,646 96
12	" - - - -	764 56
		$65,481 81
	Add for repairs on roads, - - -	33,000 00
	Incidental expense, engineer, gate, &c.,	20,000 00
		½)118,481 81
		years—11)59,240 90
	Average toll for each gate yearly, - -	$5,385 53
	Average toll for each gate daily, - -	14 75

Each of the above named gates will have to pay by toll, each day, $14 75. The two first gates will, in my opinion, pay double the amount set down to them, and there will be ample use for all they may raise for a few years, to assist the county in paying the interest; and after relieving the county, all but her 5 per cent,, their surplus must go to bring up the second gates to par. I do not expect the second gates will be able to meet their demands for the first few years. I mostly rely on the two first gates—their income will be large.

The two second gates pay five thousand dollars each, yearly, by toll—$10,000.

2d	year, both gates, - - - -	$10,000 00
3	" - - - -	10,000 00
4	" - - - -	10,000 00
5	" - - - -	10,000 00
6	" - - - -	10,000 00
7	" - - - -	10,000 00
8	" - - - -	10,000 00
9	" - - - -	10,000 00
10	" - - - -	10,000 00
11	" - - - -	10,000 00
12	" - - - -	9,557 97
	Tolls at second gates for 11 years, -	$109,557 97
	Interest at 5 per cent, - - -	40,442 03
		$150,000 00
	Add first year's interest, - - -	12,000 00

Each of the above named gates would have to pay, each day, $13 70 toll to meet the calculation made for the sinking fund.

The above calculations are for twelve years. We borrow the money for fifteen years, which will give ample time to pay any and every thing that could not be conveniently settled in twelve years. The money should be borrowed for fifteen

years, with the privilege of paying at any time after twelve years. By this plan the county may have thirty miles of good macadamized road, and at most only pay $52,000 out of $150,000. And that is not all; her citizens will be free from toll or tax on the roads forever. I do not expect to be benefitted by free roads, as my lamp has nearly exhausted its oil; but if I can do any thing that will benefit posterity, I am well paid. As our fathers laid the example of well-doing let their sons never lose sight of it.

OLLEY WILLIAMS.

ART. VIII.—SHIP BUILDING IN ST. LOUIS.

We published in the June number of the Western Journal an excellent article on the subject of "Ship Building on the Western Waters," from the pen of Hamilton Smith, Esq., of Louisville, Ky., and also an article from Dr. S. P. Hildreth, of Marietta, Ohio, giving an interesting history of ship building at Marietta, and other places on the Ohio river, from the year 1800 to the date of his communication. Many of the facts stated in these communications were new to us, and we believe that but very few people now residing in the west are aware of the extent to which ship building on the Ohio river had progressed anterior to the late war with Great Britain.

Convinced by the facts and deductions contained in these articles that the people of the west could compete successfully with those of the Atlantic coast in this important branch of mechanism, we invited communications on the subject, with a hope of calling to it the attention of capitalists and ship builders. But except the republication of our article in the Merchants' Magazine, no further notice seems to have been taken of the matter in the public prints until the appearance of the following announcement in the *Missouri Republican* of the 1st ultimo:

"*Ship Building in St. Louis.*—Contracts have been entered into with Messrs. Brotherton & Gordon for the lumber to be used in building a ship in this city. It is to be commenced immediately by Capt. Evans and Mr. French, who design to make it a permanent business. The vessel is to be of three hundred tons burthen and will be completely fitted and rigged here. It is to be completed by the first of April, will then be loaded and proceed to sea. It is believed that sea vessels can be built here on better terms than at New York, or on the Ohio. The timber used in their construction is of a better quality than that obtained on the Ohio, and greatly cheaper than that which is used in New York. In some unimportant materials, the advantage is against us, but we see no reason why the enterprise should not succeed."

We are not informed in what the disadvantage referred to in the above article consists; there are doubtless, however, some advantages on the sea coast which we do not possess here; for, in so great a variety of materials as enter into the construction and completion of a ship, there will always be a difference in the cost of some articles at any two points far distant from each other; and besides, we admit that there must ever be disadvantages encountered by the pioneers in every business. But, nevertheless, we believe that in time the advantages will be greatly in favor of ship building on the western waters, when compared with those on the sea coast. Some of these advantages are so clearly illustrated by our correspondent S., that we take the liberty of transferring them to this article. He says:

"The ship Minesota, recently built at Cincinnati by Capt. Deshon, and under direction of one of the best eastern architects, recently passed us, on her way to Liverpool. She is pronounced by competent judges to be equal in every respect, to any merchant vessel now on or off the stocks on the eastern seaboard. The estimate of comparative cost of our upper Ohio built ships, and those built at the east, is a saving of about twenty per cent. in first cost, and from fifteen to twenty per cent. more in the freight to New Orleans. For instance, the Minesota, of say eight hundred tons, would take a downward freight of five thousand dollars. The cost of towage would be, say one thousand dollars, and this would be more than saved in cost of re-shipment at New Orleans.

"The cheapest timber, iron, hemp and provisions; easy navigation; saving of cost of re-shipment, and heavy charges at New Orleans; absence of risk—of damage to perishable freight exposed to the sun in a hot climate; saving of time, interest, and insurance.

"Shippers of corn, flour, meat, and tobacco only, will fully appreciate the advantage of sending these staples to a distant market, and through an inter-tropical climate, in vessels clean, fresh and cool, and in the shortest possible time.

"If I am correct in these general views, here is an opening for an immensely valuable business to our men of capital and enterprise, and of vast importance to our country. No small part of the timber in the English dock-yards has been transported from Canada, Norway, and the Baltic, and from fresh water streams. The ships built therefrom, are provisioned with our meat and bread. Let us build the ships here—load them with our products, and sell ship and cargo abroad. We shall find the demand unlimited, and we shall, to the extent we go into the business, take labor from less profitable employments, and create an additional home market for our agriculturalists."

For the purpose of showing the extent of the business of ship building in the United States, we publish, under the head of commercial statistics, (page 685,) a statement showing the number and class of vessels built, and the tonnage thereof, in each State and Territory of the United States, for the year ending on the 30th of June, 1847, taken from the Report of the Secretary of the Treasury, from which it will be seen that the number of ships, brigs and schooners built in 1847, was 1,098; number of sloops and canal boats, 392, and of steamers 198; in all, 1,598, amounting in measurement to 243,732 tons.* Now, if we suppose the ships, brigs and schooners each to cost an average of $15,000, the number built in 1847, would amount to the sum of $16,470,000. If one-half of this business were transferred to the western waters, it would constitute, though not the largest, yet one of our most important sources of wealth; for as much as very little of the material that would enter into the construction of these vessels could find a market elsewhere, much the largest portion of their value would be a clear gain to the wealth of the country.

Messrs. Evans and French, the worthy pioneers in ship building on the Mississippi river, are entitled to the gratitude of the people of this region for making the experiment, and we sincerely hope that their enterprise may be crowned with the most complete success. The names of such persons belong to history, and posterity will class them with such as are esteemed benefactors of mankind.

*It will be observed that Indiana and Illinois are not noticed in the statement of the Secretary of the Treasury. This is to be regretted, especially because it leaves the amount of steamboat tonnage incomplete.—Editors.

COMMERCIAL STATISTICS.

STATEMENT showing the number and class of vessels built, and the tonnage thereof, in each State and Territory of the United States for the year ending on the 30th June, 1847.

Districts.	Ships.	Brigs.	Schrs.	Sloops and canal boats.	Steamers.	Total No. built.	Total tonnage. Tons.	95ths.
MAINE.								
Passamaquoddy,	1	15	10		1	27	4,076	55
Machias,		4	15			19	2,628	81
Frenchman's bay,		5	11			16	1,934	50
Penobscot,		3	12			15	2,003	78
Belfast,	1	30	19			50	7,764	20
Waldoborough,	17	31	34			82	16,836	52
Wiscasset,	4	5	14			23	3,308	28
Bath,	20	15	20			55	13,019	91
60								

Districts.	Ships.	Brigs.	Schrs.	Sloops and canal boats.	Steamers.	Total No. built.	Total tonnage. Tons. 95ths.
Portland	23	10	12	1		46	9,037 02
Saco,	2					2	548 76
Kennebunk,	5	2	3			10	2,360 10
York,			1			1	30 06
Total,	73	120	151	1	1	346	63,548 74
N. HAMPSHIRE.							
Portsmouth,	7	1	2			10	5,288 48
VERMONT.							
Burlington,			1	2		3	135 30
MASSACHUSETTS.							
Newburyport,	12	1	7		1	21	7,036 74
Ipswich,		1	4			5	399 50
Gloucester,			22			22	1,406 13
Marblehead			2			2	214 13
Boston,	18	7	10			35	11,769 15
Plymouth,		1	3			4	453 18
Fall River,			2	4	2	8	2,083 71
New Bedford,	3	2	4	1		10	1,946 71
Barnstable,		1	29			30	2,432 31
Edgartown,			1			1	27 79
Total,	33	13	84	5	3	138	27,769 55
RHODE ISLAND.							
Providence,			1		1	2	263 17
Bristol,	3		2			5	1,476 06
Newport,		2		1		3	371 34
Total,	3	2	3	1	1	10	2,110 57
CONNECTICUT.							
Middletown,			14	3		17	1,584 13
New London,			7	3	1	11	1,929 48
Stonington,	1		6	1		8	1,044 68
Fairfield,	2		3	1		6	1,469 60
Total,	3	0	30	8	1	42	6,027 94
NEW YORK.							
Champlain,			1	6		7	350 84
Sackett's Harbor,			12	3	1	16	2,771 57
Genesee,			1		2	3	894 91
Oswego,	1	1	16	7	1	26	4,205 48
Niagara,			2		1	3	183 60
Buffalo,		2	10	2	2	16	3,892 84
Sag Harbor,			2	1		3	243 22
New York,	16	2	43	117	15	193	37,590 90
Cape Vincent,			1	2	1	4	861 32
Total,	17	5	88	138	23	271	50,994 93

Districts.	Ships.	Brigs.	Schrs.	Sloops and canal boats.	Steamers.	Total No. built.	Total tonnage. Tons. 95ths.
NEW JERSEY.							
Perth Amboy,			18	6	1	25	1,899 72
Bridgetown,			14	5		19	2,058 06
Burlington,				7	1	8	401 12
Camden,			8	5	3	16	1,226 49
Newark,			8	3		11	1,383 71
L. Egg Harbor,			9			9	1,246 58
G. Egg Harbor,			13			13	1,614 36
Total,	0	0	70	26	5	101	9,830 19
PENNSYLVANIA.							
Philadelphia,	8	2	28	80	8	126	12,447 47
Presque Isle,			3		1	4	1,218 48
Pittsburg,				41	57	98	10,450 37
Total,	8	2	31	121	66	228	24,126 37
DELAWARE.							
Wilmington,			14	4	2	20	1,815 58
Newcastle,			3	2		5	463 69
Total,	0	0	17	6	2	25	2,279 32
MARYLAND.							
Baltimore,	5	17	34		1	57	8,427 30
Oxford,			17			17	1,002 75
Vienna,			30			30	2,003 79
Snow Hill,			26			26	1,213 33
St. Mary's,			1			1	44 31
Total,	5	17	108	0	1	131	12,691 58
COLUMBIA.							
Georgetown,			1	1	19*	21	776 33
Alexandria,			1			1	25 25
Total,	0	0	2	1	19	22	801 58
VIRGINIA.							
Norfolk,			5		2	7	342 08
Richmond,			1			1	100 71
Yorktown,			2			2	110 65
Accomac C. H.			6			6	323 02
East River,			7			7	435 54
Tappahannock,			3			3	175 73
Yeocomico,			1			1	37 09
Total,	0	0	25	0	2	27	1,524 92

*Query.—EDITOR.

Districts.	Ships.	Brigs.	Schrs.	Sloops and canal boats.	Steamers.	Total No. built.	Total tonnage. Tons. 95ths.
N. CAROLINA.							
Wilmington,			3			3	198 54
Newbern,	1		2			3	427 51
Washington,			4			4	478 15
Edenton,			1			1	93 54
Camden,			9	6		15	808 39
Beaufort,			6			6	269 57
Plymouth,			1			1	54 84
Ocracoke,			1			1	53 90
Total,	1	0	27	6	0	34	2,384 64
S. CAROLINA.							
Charleston,			3			3	161 72
GEORGIA.							
Savannah,				1		1	25 33
OHIO.							
Cuyahoga,		5	17	9	6	37	7,852 77
Sandusky,		1	9		1	11	2,244 40
Cincinnati,	1		3	1	30	35	8,094 31
Total,	1	6	29	10	37	83	18,191 53
MISSOURI.							
St. Louis,			1	43*	16	60	6,073 47
TENNESSEE.							
Nashville,					1	1	167 05
KENTUCKY.							
Louisville,			1		30	31	5,424 20
LOUISIANA.							
New Orleans,			6	1	2	9	384 57
Teché,			3			3	109 09
Total,	0	0	9	1	2	12	493 66
FLORIDA.							
Appalachicola,					2	2	387 93
MICHIGAN.							
Detroit,		1	6	4	4	15	2,981 64
Michilimackinac,			1		1	2	311 38
	0	1	7	4	5	17	3,293 07
Grand Total,	151	168	689	392	198	1598	243,732 67

*Query, Keel Boats.—EDITOR.

A Comparative View of the registered and enrolled tonnage of the United States, showing the tonnage employed in the whale fishery, also the proportion of the enrolled and licensed tonnage employed in the coasting trade, cod fishery, mackerel and whale fishery, from 1815 *to* 1847 *inclusive.*

Years	Registered Tonnage.	Enrol'd & licensed tonnage.	Total tonnage.	Reg. ton. in whale fishery.	Proport'n enrolled & licensed tonnage in Coasting trade.	Cod fishery.	Mack'rel fishery.	Whale fishery.
	Tons and 95ths.							
1815..	854,294 74	513,833 04	1,368,127 78		435,066 87	26,570 33		1,229 92
1816..	800,759 63	571,458 85	1,372,218 48		479,979 14	37,879 30		1,168 00
1817..	809,724 70	590,186 66	1,399,912 41	4,874 41	181,457 92	53,990 26		349 92
1818..	606,088 64	619,095 51	1,225,184 20	16,134 77	503,140 37	58,551 72		614 63
1819..	612,930 44	647,821 17	1,260,751 61	31,700 40	523,556 20	65,044 92		686 35
1820..	619,047 53	661,118 66	1,280,166 24	35,391 44	539,080 46	60,842 55		1,053 66
1821..	619,896 40	679,062 30	1,298,958 70	26,070 83	559,435 57	51,351 49		1,924 40
1822..	628,150 41	696,548 71	1,324,699 17	45,449 42	573,080 02	58,405 35		3,133 50
1823..	639,920 76	696,644 87	1,336,565 68	39,918 13	566,408 88	67,620 14		585 37
1824..	669,972 60	719,190 37	1,389,163 02	33,165 70	589,223 01	68,419 00		180 08
1825..	700,787 08	722,323 69	1,423,110 77	35,379 24	587,273 07	70,626 02		.....
1826..	737,978 15	796,211 68	1,534,189 83	41,757 32	666,420 44	63,761 42		226 83
1827..	747,170 44	873,437 34	1,620,607 78	45,653 21	732,937 65	74,048 81		338 94
1828..	812,619 34	928,772 52	1,741,391 87	54,621 08	758,922 12	74,947 74		180 34
1829..	650,142 88	610,654 88	1,260,797 81	57,284 38	508,858 10	101,796 78		.....
1830..	576,675 33	615,311 10	1,191,776 43	38,911 82	516,978 18	61,554 57	35,973 38	792 87
1831..	620,451 92	647,394 32	1,267,846 29	82,315 79	539,723 74	60,977 81	46,210 80	481 82
1832..	686,989 77	752,460 39	1,439,450 21	72,868 84	649,627 40	54,027 70	47,427 72	377 47
1833..	750,126 72	856,123 22	1,606,149 94	101,158 17	744,198 60	62,720 70	48,725 43	478 39
1834..	857,138 42	901,468 67	1,758,907 14	108,660 14	783,618 65	56,403 70	61,082 11	364 16
1835..	885,821 60	939,118 49	1,824,940 14	97,640 00	792,301 20	72,374 18	64,443 11	.....
1836..	897,774 51	984,328 14	1,882,102 65	144,680 50	873,023 21	63,307 37	64,424 25	1,573 26
1837..	810,447 29	1,086,238 40	1,896,685 69	127,241 81	956,980 60	80,551 89	46,810 90	1,894 86
1838..	822,591 86	1,173,047 89	1,995,639 80	119,629 89	1,041,105 18	70,064 00	56,649 16	5,229 55
1839..	834,244 54	1,262,234 27	2,096,478 81	131,845 25	1,153,551 80	72,258 68	35,983 87	439 69
1840..	899,764 76	1,280,999 35	2,180,764 16	136,926 64	1,176,694 46	76,035 65	28,269 19	.....
1841..	945,803 42	1,184,940 90	2,130,744 37	157,405 17	1,107,067 88	66,551 84	11,321 13	.....
1842..	975,358 74	1,117,031 90	2,092,390 60	151,612 74	1,045,753 39	54,804 02	16,096 83	377 31
1843..	1,009,305 01	1,149,297 92	2,158,801 93	152.374 86	1,076,155 59	61,224 25	11,775 70	142 33
1844..	1,068,764 91	1,211,330 11	2,280,095 07	168,293 63	1,109,614 44	85 224 77	16,170 66	320 14
1845..	1,095,171 44	1,321,829 57	2,417,002 06	190,695 65	1,190,898 27	69,825 66	21,413 16	206 92
1846..	1,130,286 49	1,431,798 32	2,562,084 81	186,980 16	1,289,870 89	72.516 17	36,463 16	439 58
1847..	1,241,312 92	1,597,732 80	2,839,045 77	193,852 72	1,452,623 35	70,177 52	31,451 13	.....

NOTE.—No separate returns of tonnage employed in the mackerel fishery was made by the collectors of the customs to this office prior to the year 1830.

DANIEL GRAHAM, Register.

ILLINOIS AND MICHIGAN CANAL CLOSED.

WE learn that this canal was closed by ice on the 10th of November. Near LaSalle on the 11th, the ice is reported to have been from three to four inches thick, and navigation was entirely suspended.

Navigation was again opened on the 23d of November, and orders for large quantities of sugar, molasses, &c., were received at this city from Chicago; the articles were placed on board a steamer for shipment, and in a few hours were under way to their place of destination. So much for the Telegraph.

WESTERN LITERATURE.

Beatty on Agriculture.—This valuable treatise has been before the public for several years, and we have frequently regretted, since we have commenced our labors as journalists, that we could not find a copy for sale in St. Louis. This fact has sometimes caused us to doubt of the success of our own enterprise, for it occurred to us that if a work of so much merit, and of such general utility was not in demand, that our prospects were rather gloomy.

It is possible, however, the edition may have been exhausted; if so, we hope the author will issue another, or publish a work on the same subject, embracing a larger range of topics. With the most thorough experience in the practical details, Judge Beatty has combined the science connected with agriculture, and is capable of producing a better and more useful work for the western agriculturalist, than perhaps any other individual in the country. We beg to recommend the book to every farmer, and trust that arrangements will be made to extend its circulation in the west.

The Priest of the Black Cross, a Tale of the Sea: by Capt. T. Ware Gibson; published at the "Great West" office, Cincinnati.

We are indebted to the politeness of the publishers for a copy of this work, but as we have not had time to read it, we can take no further notice of it at present. We intend at some future time to give our readers an article on the subject of western literature, in which we hope to do justice to both authors and readers.

FENCES FOR THE PRAIRIES.

A new kind of fence is coming into use in northern Illinois. The fence consists of strips of sheet iron, one inch and a half wide, prepared in oil, so as to resist the action of the weather, and painted white. These strips are nailed to posts in the ground, two rods apart, with a perpendicular strip of board every other rod. The whole cost per rod, is estimated at less than thirty cents; and it is superior to wire as it does not sag, and being painted white, cattle will see it and not run against it.—[*Brunswicker.*

IMPORTANT INDIAN TREATY.

Gen. Wm. Medill, the Superintendent of Indian Affairs, has made a treaty with the Menominee Indians, in the Territory of Wisconsin, by which the United States acquire a title to 4,000,000 acres of new territory in Wisconsin, embracing land on the Fox and Wisconsin rivers. The Indians receive about $300,000. Out of this a specific sum is set apart for a school, grist-mill, blacksmiths' shop, and the support of a miller for a number of years.

It is supposed that this treaty will bring about the immediate construction of a canal, to connect the Fox and Wisconsin rivers, as some years ago, Congress granted Wisconsin alternate sections of land to complete this work, but it could not then be carried out, as the Indians held too much of the land.

To obtain fresh blown Flowers in Winter any day you choose.—Choose some of the most perfect buds of the flowers you would preserve, such as are latest in blowing aud ready to open, cut them off with a pair of scissors leaving to each, if possible, a piece of the stem about three inches long; cover the end of the stem immediately with sealing wax: and when the buds are a little shrunk and wrinkled wrap each of them up separately in a piece of paper, perfectly clean and dry, and lock them up in a dry box or drawer; and they will keep without corrupting. In winter, or at any other time, when you would have the flowers blow, take the buds over night and cut off the end of the stem sealed with wax and put the buds into water wherein a little nitre or salt has been diffused, and the next day you will have the pleasure of seeing the buds open and expand themselves and the flowers display their most lively colors and breathe their agreeable odors.—*Scientific American.*

TO OUR PATRONS.

After the present number, the Western Journal will be enlarged to seventy-two pages, and printed on good book paper, and with new type, at three dollars per annum, payable in advance. Six numbers will hereafter constitute a volume, and a general index will be made up and published at the close of each; and subscribers may bind in one or in two volumes, according to their taste, at the end of the year.

We desire that if any of our subscribers should decline taking the work for the next year, that they will advise us of that fact immediately. If not advised of their intention to discontinue in time for distributing the January number, we shall still consider them as subscribers, and forward the work.

Since distributing the tenth number we have discovered that the binders left out a portion of the sheets in some of the copies. Should any of these defective copies have been distributed, we will be pleased to forward perfect copies, provided those that are imperfect are returned.

We do not consider that our subscribers are under any obligation to aid us in extending the circulation of the Western Journal. All we ask of them is that they will pay us punctually, read it carefully, and criticise it freely, but without prejudice. Beyond this, we have no claim; this is all, and perhaps something more than we bargained for in the beginning, and if at the close of the volume we have failed to convince them that our labors are calculated to promote the social weal, we have certainly no right to claim their assistance in extending its circulation.

CONTRIBUTORS TO THIS VOLUME.

H. A. Prout, M. D., St. Louis, Missouri—On the Geology of the Valley of the Mississippi—kaolin, pipe clays, &c.

Hon. John M. Krum, of St. Louis, Missouri—Obligation of Contracts.

Thomas Allen, Esq., St. Louis, Missouri—Commerce and Navigation of the Mississippi River and its Tributaries.

Evans Casselberry, Esq., St. Louis, Missouri—On the Discovery, the first Settlement, and the first Laws of the Mississippi Valley. Public Education.

F. Woolford, Esq., Caledonia, Missouri—On the Mineral Resources of Washington County, Missouri; china clay, manufacture of china, &c., clays and minerals; discovery of galena among the primitive rocks, near Caledonia; discovery of cobalt, manganese, tin, &c.

Hon. Timothy Walker, Cincinnati, Ohio—The Morals of Commerce.

Joseph Ormrod, Esq., Cooper county, Missouri—Modern Literature. Mental Culture. Theory of Life and Happiness.

E. Mallinckrodt, St. Louis, Missouri—History and Habits of the Potato.

Alfred S. Waugh, Esq., St. Louis, Missouri—Rise, Progress and Influence of the Fine Arts.—Architecture and Sculpture.

Hon. O. Williams, St. Louis county, Missouri—Subsoil Ploughing and Water Furrows.

D. Carlin, Esq., St. Louis county, Missouri—Jerusalem Artichoke.

Hamilton Smith, Esq., Louisville, Ky.—Ship Building on the Western Waters.

Henry T. Watson, Esq., St. Louis, Missouri—Lines to Miss Georgia W.

Hugh A. Garland, Esq., St. Louis, Missouri—Chapter from the Life of John Randolph.

J. T. Cleveland, Howard county, Missouri—On the Culture of Hemp.

John H. Tice, Esq., St. Louis, Missouri—Education.

J. Loughborough, Liberty, Missouri—Early History of the Territory west of the Mississippi. North American Indians. Commerce of the East.

B. A. Alderson, Esq., St. Charles county, Missouri—Wheat Growers' Association.

John Perry, Esq., of St. Louis, Mo.—Description of Lead Mines.

Joseph Coatsworth, St. Francis county, Missouri—Description of Mines, Ores, &c.

ERRATA.

The reader will please to make the following corrections:

Page 12, 1st line, for those read *these*.

" 16, 1st line, for tuberojum read *tuberosum*.

" 16 and 17, read *tuber* for tubus and tubor in sundry places.

" 17 in 18th line, strike out the word *the* before fungi—strike out the final *e* of the latter word.

" 27, 2d line, strike out the word *up*.

" 30, 3d line, under the head of "Coal Mines," read *geological*, instead of geographical.

" 35, 9th line, 3,7000 spindles, read 3,700 spindles.

" 37, 14th line, for the word this, before foreign, read *their*.

" 38, for McCum read *McCune*.

" 42, 21st line, for health read *habits*.

" 43, 7th line, after well insert *as*.

" 43, 34th line, after cast insert *out*.

" 46, 3d line, read *forewarned* instead of forwarned.

" 51, 8th line, instead of Captain H. M. Shreeve read *Thomæs Gray*.

" In the table of Steamboat arrivals in April and May, 1847, read 919 instead of 119.

" 218, 20th line, for effected read *affected*.

" 218, 30th line, for expression read *expansion*.

" 257, 20th line, under the head of Holcomb's Hemp Brake, for scratching read *hatcheling*.

" 304, 16th line, in place of privileges read *frivolities*.

" 307, 23d line, in place of generation read *creation*.

" 341, at the head of the table for June, 1846, read *June*, 1847.

" 441, 30th line, for leave read *have*.

" 454, 32d line, for land read *hand*.

" 506, 2d line, for invalues read *involves*.

" 519, 2d line, for he have read *has*.

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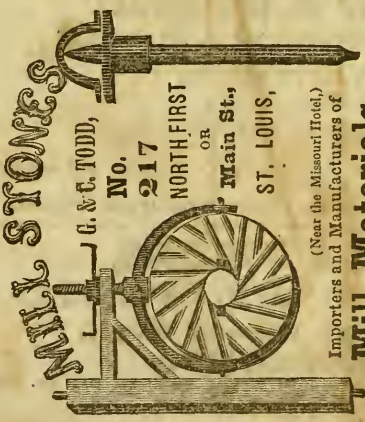

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1. The adaptation of the Climate and Soil of the West to Sheep Growing, and the prospect of profit arising from this branch of husbandry.
2. Upon the introduction of Manufactures in the West.
3. Upon the subject of Internal improvement in Missouri, and the Mississippi Valley in general, and the locations which will best promote the general interest.
4. The Internal Commerce of the United States.
5. The Mineral Resources of the Valley of the Mississippi.
6. Upon the culture of Hemp—including the details of sowing, reaping, rotting, breaking and manufacturing—with an account of the latest improvements and discoveries in each branch; and also the prospect of extending its uses and of increasing the demand. Likewise, a description of the soil and location best adapted to its growth.
7. Upon the culture and best mode of preparing Hops for market; the cost of production, and the kind of soil, &c., adapted to their growth